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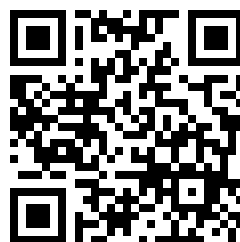
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# The School World

A MONTHLY MAGAZINE OF  
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# The School World

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SIXPENCE.

## ORAL WORK IN TEACHING ENGLISH.

By ALBERT E. ROBERTS, M.A.

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PROF. PREYER, in his "Development of the Intellect," maintains that "the new-born human being brings with him into the world far more intellect than talent for language." Whether this is so or not, there seems to be no doubt that during the school period the child's *ideas* are in excess of his *power to express* those ideas: and mental power in the case of the average individual throughout the active period of his life maintains an undoubted advantage over the linguistic faculties. Language reacts on mental power to such an extent that the cultivation of the former is absolutely essential to the cultivation of the latter, and the cultivation of expression can be carried out largely and at the expense of least energy on the part of the teacher by *oral* methods, for the oral method is the natural method.

THE VALUE OF ORAL WORK.—We must remember that language is essentially something of the tongue and the ear. In the history of its development spoken language always precedes written language. We use in our everyday life spoken language far more than written. Moreover, the power to speak well is a more valuable asset to the average man than the power to write well. We all desire to be "well-spoken." For this reason oral work should be regarded as more important than written work in the teaching of English composition, not only in the case of the youngest children when writing is an arduous, slow, and almost mechanical process, but also in the case of the oldest when comparative fluency is obtained. Experience leads the writer to think that if a boy can speak fluently, he will be able to write all the more fluently, the power to write well being the inevitable concomitant of the power to speak well, provided the oral instruction proceeds along right lines, and is as thorough and methodical as that adopted for the written work. We hear complaints on all sides that boys cannot write good English. They will never be able to do so, unless more oral instruction is given in our schools.

IDEAS AND VOCABULARY.—There are two things we have to consider in our oral as in our written

work: (1) the child's ideas; and (2) the vocabulary at his disposal wherewith to express those ideas.

It is our business continually (1) to enlarge those ideas, and (2) to enlarge his vocabulary. The two are inseparably connected; but, as has been said, thought precedes expression, even if thought and language are inseparable. There can be no expression without impression. This does not mean that we are to impress every fact on the child before we can expect him to express any ideas. We are apt to forget that ideas flow into his mind continually. The inlet of ideas is wider than the outlet, and what we want to do is to widen the outlet, though, of course, we must guard against the tendency of the child to use words like a parrot, without any meaning behind them.

SOME OBVIOUS TRUISMS.—The following essential principles must be borne in mind:

(1) We must overcome the boy's self-consciousness.

(2) We must give members of the class time to think before we call upon them to speak.

(3) We must develop fluency of speech, which is quite as important as accuracy.

(4) We must give frequent practice in continuous narrative.

(5) We must develop the child's individuality.

(6) We must develop his originality. He should be allowed to speak from his own point of view, and narrate his own experiences, as well as reproduce ideas which have been supplied to him by the teacher or through the medium of the books he is reading.

The following will form the basis of most of the oral work:

(1) CONVERSATIONS based on the various phases of the child's experience and environment: (a) the social world, the chief factors of which are the school and the home; (b) the nature world; (c) the book world. In the primary stages these conversations will be connected with such simple objects as toys, animals, plants, flowers, or with subjects suggested by incidents in everyday life in school and out of school. It is essential that even in the initial stages these conversations should be so carried on that the child is made to use dignified language and present his facts in proper sequence. During such conversations

it will be easy to teach the youngest children the exact use of prepositions, such as "between" and "beside," if they are asked to describe the position of objects in the schoolroom. Similarly they can be taught the correct irregular verb forms, such as "lie," "sit," "see," the correct use of plural nouns, and other language work conditioned by the exigencies of the oral work.

Later, a skeleton outline should be developed on the blackboard by the teacher in co-operation with the class; e.g., if a boy is going to speak about his dog at home, it is suggested by the class that two points should be dealt with: (i) a description of the dog and (ii) what it can do. These headings are put on the board as forming the main topics of the two paragraphs to be used. The use of ready-made outlines, as a rule, stifles thought. During the oral work the teacher's language should generally be slightly in advance of the class, yet always intelligible, so that the children's vocabulary will be steadily increased. The methods of increasing the vocabulary will be discussed in a future article.

(2) THE REPRODUCTION OF STORIES—e.g., fairy story, legend, myth. The story should be *told* rather than read, but the language of the teacher must be literary, and new words should be continually introduced. When they are introduced, there is no need to break the continuity of the story by any explanation. A synonymous phrase should rather be used by way of explanation, if the meaning is not evident from its context. These stories should include Classical, Keltic, and Norse myths, as these form a good groundwork for future literature lessons. The reproduction need not, and often should not, immediately follow the reception, or the verbal memory will play too important a part. The boy should come out to the front of the class, since such a practice breeds confidence, and he should reproduce the story continuously.

If the story is long, the teacher by means of questions might, co-operatively with the class, work out what the central ideas in the story are, and put these under separate headings on the board, each forming the theme of a separate paragraph. This will give an opportunity for more boys to take part in the work, each being required to deal with a separate section of the story. The boys will then get a good idea of *paragraphing*. This matter of paragraphing is of prime importance. Not only must the children know the events, but they must arrange them in proper sequence, grouping them about the main theme. The difficulty boys usually have with paragraphing is generally due to the fact that the teacher does not begin the practice, until the pupils begin to write. This is, of course, absurd. When the child is arranging in logical order the parts of the story to be told, he is taking the first steps in paragraphing. The oral method is far the most effective instrument in teaching the child the correct methods thereof.

• *Reproduction of Fables*.—In the higher classes the children, due time being allowed for thought,

should be required to make up a fable with a similar moral to the one they have recently been dealing with. One or two only of their attempts can be discussed orally, but if these are well criticised, the exercise will be as useful as if all were written on paper, though, of course, exercises where the children's individual attempts must differ materially in subject-matter should as a rule take the form of written work. The first instruction, however, should be given orally, in order that the class may see what is expected of them. After the composition of original fables, the class should be able to enlarge a proverb into a story. Here again the first instruction must be oral, if the class is to know how to proceed. For example, "A soft answer turneth away wrath" will be dealt with orally during one lesson, and during the next the children will be required to write a story on "A merry heart doeth good like a medicine."

*Reproduction of History and other Lessons. The Dramatisation of a Reading or History Lesson. Reproduction of the Reading Lesson*.—Not only should every reading lesson be summarised by one or more children, but questions should also be asked, arising out of the reading material. If the children of an upper class have been reading "Sesame and Lilies," they might be asked to express their opinions on the extent to which Ruskin's statements concerning England in 1864 are true of England to-day. Again, they should be required not only to give Ruskin's views concerning books, but their own ideas concerning Ruskin's views. The child's originality must be trained. Mere reproductive work is not sufficient. We should not, for instance, be satisfied with the reproduction of the stories mentioned above. We can develop the child's originality by changing an incident in the story and requiring the class to tell the story in the altered form necessitated by this change of incident. Or, we can let the child add something of his own invention. In addition to this method of modified reproduction, we might tell the class part of a story and require them to finish it. The elaboration of a given outline of a story always affords good practice in oral work. We must see that proper attention is paid to order, if the child is to make the incident unified and coherent.

For example, the following is usually the order: (i) where; (ii) when; (iii) who—the chief characters; (iv) what happened; (v) an appropriate ending. It is a good plan not to interrupt the child while he is giving his account, but to have a notebook and jot down the chief mistakes, and correct these afterwards. Criticism from the class, too, is particularly stimulating.

(3) DESCRIPTION OF PICTURES forms a good subject for oral work and for the cultivation of taste, but we must train the children to find the central idea in the picture, and to see the picture as a whole rather than the isolated objects therein. Those that show action will be found to serve the teacher's purpose best.

(4) SIMPLE SPEECHES.—Boys in the higher



classes should be taught how to make a simple speech. They should be able at least to respond courteously to a vote of thanks or to pass a vote of thanks. Such duties may fall upon any boy, after he has left school. More serious debates are necessary, but usually the debating society and school parliament are inclined to breed prigs and cause insufferable conceit. Discussions arising out of the literary work are best suited for the purpose—e.g., "Was Brutus justified in killing Cæsar?" "How far was Lady Macbeth responsible for Macbeth's crimes?" "Were the people justified in banishing Coriolanus?" Subjects on which two opposite opinions may be expressed are preferable. One of the best boys should be allowed to take the chair. The leading speeches, both for and against, should be prepared before the lesson.

(5) INFORMAL TALKS IN CONNECTION WITH BOOKS read in class and at home are invaluable. Suppose, for example, George Eliot's "Mill on the Floss" is set for home reading. A day is set aside on which the class are expected to give briefly the story of the novel. One of the class tells the story in, say, fifteen minutes. The class should be required, during the narration, to make a skeleton outline of the story. They criticise the boy's version of the story, directing attention first to the good points and afterwards to the defects. The clearness with which the story was told, the language used, the observance of due proportion, the sequence of events, are some points on which opinions should be expressed. After this one or two boys should be asked to give the main threads of the narrative in two or three minutes, and then a skeleton outline of the plot should be developed on the board. Another day a member of the class should be required to give his impressions of the book. This should be the groundwork of much fruitful discussion.

If such work is done systematically the results in the written exercises will be far better than could be obtained without the assistance of oral work. Not only does oral practice make the child a better speaker, but it also improves his power of writing. Moreover, it will relieve the teacher of many weary hours of marking. No further justification of employing the direct method in the teaching of the mother tongue is required.

#### "SPECIAL PREPARATION" FOR OSBORNE COLLEGE.

IT is now more than seven years since the "New Scheme of Entry of Naval Cadets" came into force. By this scheme the age of entry was lowered from  $14\frac{1}{2}$ – $15\frac{1}{2}$  years to 12–13 years, and nomination, followed by a *qualifying* examination, was substituted for the competitive examination.

The latter change was admittedly made on the ground that it would be obviously undesirable to subject boys of 12 years of age to the strain of a competitive examination and to the "cramming"

which is almost inevitable in the preparation for such competition.

But in many quarters the change has been regarded as "too good to be true"; and there has been from the first some difficulty in inducing parents and guardians to believe that the examination, as now conducted, is not competitive, and that special preparation is unnecessary. Yet the Admiralty authorities have certainly done their best to make this clear.

In 1904, less than a year after the promulgation of the new scheme, a Blue-book<sup>1</sup> was issued under the title of "Selection of Candidates for Nomination as Naval Cadets," and in the Prefatory Memorandum the following passage occurs:

"It appears that the nature and intention of this examination is occasionally misunderstood, and that some parents make the mistake of supposing that the services of a 'crammer' are necessary or desirable. It cannot be too plainly intimated to the parents of boys who are presented under the new scheme that the Admiralty do not want candidates who have been specially prepared to pass an examination. They want boys who have had the advantage of natural mental and physical development under the usual conditions of a good preparatory school. To take away the boy from such a school and subject him to special tuition is a course to be emphatically deprecated. Of the whole number of candidates for nomination it is impossible to accept nearly all. . . . Those who are taken will be better fitted for beginning their training at Osborne if they come to it direct from a preparatory school of the ordinary type. Up to the time of entry at Osborne it is on every ground desirable that there should be no distinction between the school work of the Navy candidate and that of the boy who means to go on to a public school."

Again, in 1907, the Director of Naval Instruction (Prof. J. A. Ewing, F.R.S.), addressing the annual conference of the Association of Preparatory Schools, said: "There were times before the new scheme came into being when the supply of naval cadets was to a large extent in the hands of establishments of a special character. When the new scheme was born, there was a strong feeling that this tradition should, if possible, be departed from, and that before coming to us cadets should have the normal life and training of boys at school, not any abnormal or forced training, nothing, in fact, of the nature of cramming. What was wanted was that the boys should come to us from preparatory schools of the ordinary kind."

These statements would seem to be sufficiently emphatic, but cherished beliefs die hard, and preparatory-school masters have found from practical experience that there are parents who still imagine that some sort of "cramming" is essential to success. In order to correct this impression finally the Council of the Association of Preparatory Schools recently requested the Admiralty

<sup>1</sup> See THE SCHOOL WORLD, April, 1904 (vol. vi., p. 148).

authorities to reaffirm their views on the subject of "Special preparation for Osborne." The result of this application is the following letter from Mr. McKenna, addressed to the Rev. H. Bull, who was one of the deputation appointed by the Association of Preparatory Schools to wait upon the First Lord of the Admiralty:

November 23rd, 1910.

Dear Sir,—In compliance with the promise made to the deputation of members of the Association of Preparatory Schools, which I received on November 2nd, I willingly write to restate the position taken by the Admiralty with regard to "special preparation" of candidates for Osborne.

The Admiralty are strongly opposed to all special preparation. Ever since the new scheme of entry and training came into operation seven years ago this attitude has been consistently maintained, and there is not the slightest intention of modifying it. On the contrary, the experience gained during these years has only served to confirm the view that any special preparation of candidates for naval cadetships should be discouraged. It is, in fact, discouraged by every means in our power.

We prefer that candidates should receive the usual education which preparatory schools give to boys who are about to pass on to public schools: we even deprecate special "Navy Classes" in preparatory schools.

Any parent who removes his boy from a preparatory school of the ordinary type in order to send him to a school which lays itself out to "prepare for the Navy" is ill-advised, and is not improving his boy's chances.

We find that the great majority, including the most satisfactory cadets, are those who have received the usual education of a preparatory school up to the time of their entry to Osborne. Upwards of 200 preparatory schools send us boys who have received no special preparation whatever.

You are aware that the system of interview by a committee, which has been pursued since the new scheme came into operation, was adopted as a means of escaping the evils of competitive examination, one of which had been the development of cramming establishments giving special preparation. It has been successful in this object, and I believe there is now no serious danger of a recrudescence of the evil. But it cannot be too clearly understood that anything in the nature of special preparation is, in our opinion, not only unnecessary, but positively prejudicial.

Believe me, yours very truly,

REGINALD MCKENNA.

It may be hoped that this letter, which appeared in the *Times* and other newspapers, will finally dispel the illusion that has lingered so long.

#### EMPLOYMENT BUREAUX.

**B**Y the passing of the Education (Choice of Employment) Bill into law on the day of dissolution of Parliament, the English and Welsh local education authorities have, after a keen controversy, been accorded statutory powers to "give boys and girls information, advice, and assistance with respect to the choice of employment." The School Boards of Scotland were put in possession of these powers by the Education (Scotland) Act, 1908, and the School Board of Edinburgh took the lead in making the powers operative. This Board started in 1908 an Educa-

tional Information and Employment Bureau for Boys and Girls, and appointed Mr. McNally, who had been a head teacher under the Board, in the double capacity of organiser of the continuation classes and director of the bureau. The results have been conspicuously successful, in a large measure owing to the enthusiastic work of the officials and the co-operation of the members of the Board.

The originator of the conception of a national system of School Information and Employment Bureaux was Mrs. Ogilvie Gordon, who first placed her scheme before the public at the annual meeting of the Glasgow Union of Women Workers held in March, 1904. The full draft of her scheme was submitted to the President of the Board of Education and to the Secretary for Scotland, and was supported by numerous resolutions passed in its favour at public meetings. It was afterwards published in Mrs. Ogilvie Gordon's "Handbook of Employments" (Rosemount Press, Aberdeen).

The Educational Institute of Scotland at its annual meeting of 1906-7, held in Dundee, passed a resolution approving Mrs. Ogilvie Gordon's proposal "for the establishment of bureaux in connection with the local educational authorities, to give guidance to boys and girls in selecting suitable occupations and employments, and to give advice on further courses of study." A similar resolution was passed by the National Union of Women Workers at Manchester in 1907, and at annual meetings of the National Association of Head Teachers of England and Wales, the Association of Teachers of Domestic Science, and other teaching bodies.

Mrs. Ogilvie Gordon stated that the aim of her scheme was to bring the teachers' knowledge of the individual boy and girl effectively to bear upon their choice of a future career, and it was based upon the sound economic principle that work on such lines ought to be nationally organised in order to make sure that it should reach every child, and that the work ought to cover *all* the openings and occupations for our youth—skilled or unskilled, mercantile or professional.

The Scotch Education Department from the first gave every facility for the adoption of the scheme, but in England very few education authorities would venture to begin, having neither legislation nor any special grant to support them. Nottingham and Wigan were the first education authorities in England to start a school bureau.

A few committees of voluntary workers combined in 1902 to form the London "Apprenticeship and Skilled Employment Association," and did excellent work in helping boys and girls to enter apprenticeships. In this they followed the example given by the Jewish Board of Guardians in London, which has carried on work of this kind for nearly twenty-five years. In 1909, eighteen of these committees were at work and they had brought themselves into close connection with the London County Council Schools. Voluntary committees were also started in some of the

provincial towns, such as Hull, Sheffield, Liverpool, sometimes by teachers, sometimes by members of education committees or philanthropic associations.

All these efforts helped to prepare the way for legislation, which was further precipitated by the dissatisfaction felt among educationists when the Board of Trade, in developing its system of labour exchanges, recently proceeded to form advisory committees for juvenile work, and only invited a small proportion of representatives from the education authorities.

The Board of Trade also issued a circular in February of this year, entitled "Special Rules with regard to the Registration of Juvenile Applicants in England and Wales," from which it appeared doubtful whether, without further statutory powers, the education authority was entitled to form information and employment bureaux of the nature originally proposed. The Association of Head Teachers of England and Wales in May, 1910, passed a resolution asking the President of the Board of Education to introduce a Bill to give the requisite statutory powers to the education authorities. Representations on behalf of the paramount influence of the education authority in the work of advising children were made to the Board of Trade and the Board of Education from the London County Council, the Association of Education Committees of England and Wales, and by a joint deputation organised by Mrs. Ogilvie Gordon and Mr. A. J. Mundella, secretary of the National Education Association. This deputation represented Local Education Authorities, National Union of Teachers, National Education Association, National Union of Women Workers, National Association of Head Teachers, Northern Counties' Education League, Half-time Council, Committee on Wage-earning Children, Women's Local Government Society, and some employers of labour.

The Bill that has now become law "enables certain local education authorities to give boys and girls information, advice, and assistance with respect to the choice of employments." There is now a prospect of an effective advisory service being organised throughout the country, administered by committees formed under the education authorities, and there should be no difficulty in arrangements being made locally between the labour exchanges and the education authority so that no actual overlapping of work shall take place, but each be helpful to the other.

The practical experience of the Edinburgh Bureau is of very great value. It had started work before the labour exchanges came into being, but in view of the desirability of ensuring a uniform system of registration, the Edinburgh School Board has now made arrangements that the Labour Exchange Department of the Board of Trade shall supply to the School Board Bureau a special clerk to carry on the actual registration work. This arrangement, which is to take effect from the beginning of January, will in no way

affect the general work and administration of the bureau, and it has the great advantage of concentrating all the advisory and employment work for juveniles in the School Board office, and preventing any overlapping in Edinburgh.

## THE CALCULATION OF A SQUARE ROOT.

By T. PERCY NUNN, M.A., D.Sc.

A RECENT circular of the Board of Education has laid timely stress upon the value of "graphic algebra" as an instrument of mathematical exposition. The expression generally suggests the use of a curve as a means of making clear the relation between two variables, but it may with advantage be employed in a much wider sense. Historians of mathematics have pointed out that a good deal of the subject-matter of Euclid's *Elements*—even when he is dealing with squares and rectangles—should be regarded as algebra rather than geometry. In the absence of a system of symbolism based upon an effective numerical notation, the geometrical theorem was the nearest approach that could conveniently be made to an abstract investigation and statement of arithmetical generalisations. Thus the figure of Euclid, II. 4, may be regarded as a graphic presentation—not representation—of the relation which we express by the symbolism  $(a+b)^2 = a^2 + 2ab + b^2$ , in the case where the letters stand for arithmetical numbers without signs.

It may be maintained that even when the modern method of expression is available, the graphic presentation, owing to its readier intuitibility, makes the more direct appeal to the young understanding. For this reason the mathematical truth should be presented in its graphic expression *before* it is clothed in algebraic symbolism. It is true that it is now customary to "prove" Euclid, II. 4, by an application of the algebraic identity, which must, therefore, be supposed to be previously known. But this is merely one out of many instances in which, through failure of perception or want of courage, we continue to invert the natural order of teaching procedure. Many teachers must have remarked the lack of conviction, or at any rate the lack of spontaneity, which often characterises the pupil's dealings with these algebraic proofs. The source of his difficulties lies in the psychological inversion which we are forcing upon him. We are expecting him to understand *obscurum per obscurius*.

The soundness of this argument may be tested by applying it to a fairly difficult teaching problem—how to establish the rule for extracting a square root. Few teachers of experience would hold that the ordinary algebraic argument is satisfactory for teaching purposes. An alarmingly large percentage would, if pressed, confess that they shirk it, and take refuge in undisguised dogmatism. On the other hand, it may be claimed for the argument here to be described that it not only satisfies the pupil's logical sense but is also heuristic—that is, that it actually leads him to the

discovery of the "rule." It is intended to be taken *before* the pupil has acquired familiarity with the identity  $(a+b)^2 = a^2 + 2ab + b^2$ .

The figure AB (Fig. 1) is a square of given area of which we require to know the length of the side. In certain cases this length can be determined at once—for example, if the area is 16, or 81, or 169 sq. in. But if the area is, say, 14.44 sq. in., the matter is not so simple. The length of the side is clearly between 3 and 4 in., so we may begin by marking off the square XY, the side of which is 3 in. long and the area of which is 9 sq. in. We are left with the gnomon XBY of area  $14.44 - 9 = 5.44$  sq. in. Now it is

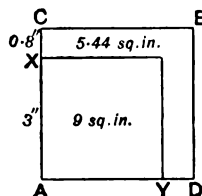


FIG. 1.

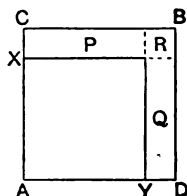


FIG. 2.

obvious that this gnomon can be regarded (Fig. 2) as the sum of two congruent rectangles, P and Q, and a square, R. All three figures have the same height—which is the excess of the length of AC over 3 in. Setting the figures end to end we have the long rectangle of Fig. 3. About this rectangle we know that its total area is 5.44 sq. in., and that the base measures 6 in. (i.e.,  $2 \times 3$  in.) plus the side of the square R. What we want to determine is the height of the rectangle, which is, of course, identical with the length of the side of R. If the whole length of the base was 6 in., the height would be  $5.44/6 = 0.91$  in. But since the base is more than 6 in. long the

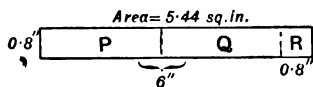


FIG. 3.

height must actually be less than this. Let us try the assumption that it is 0.8 in. The length of the base now becomes 6.8 in., while for the area we have

$$6.8 \times 0.8 = 5.44 \text{ sq. in.}$$

Thus our assumption is justified. The height of P, that is, XC, is 0.8 in., and the whole side of AB is 3.8 in. The numerical working is now set down in the usual way, the connection between each step and the previous argument being obvious.

$$\begin{array}{r} 14.44 \text{ (} 3 + 0.8 \\ 9 \\ \hline 5.44 \\ 6.8 \quad 5.44 \\ \hline 5.44 \end{array} = 3.8$$

Consider next a square the area of which is 40 sq. in. (Fig. 4). Here the first square to be removed is one measuring 6 in. in the side. It leaves a gnomon the area of which is  $40 - 36 = 4$  sq. in. Arranging the parts as before (Fig. 5) we have a rectangle of area 4 sq. in., the base of which is rather greater than  $2 \times 6 = 12$  in. The

height must therefore be rather less than 0.33 in. Let us try 0.3 in. This assumption implies a rectangle measuring 12.3 in. by 0.3 in., and having an area of  $12.3 \times 0.3 = 3.69$  sq. in. This is less than the area of the rectangle in question by  $4 - 3.69 = 0.31$  sq. in. If, therefore, we cut off from AB (Fig. 4) a square the side of which is 6.3 in., we shall still have left a gnomon, XBy, of area 0.31 sq. in. But this gnomon can in turn be arranged as a long rectangle composed of two equal rectangles, p and q, and a square, r (Fig. 6). Its area is 0.31 sq. in., and its base measures 12.6 in. (i.e.,  $2 \times 6.3$  in.) plus the length of the side of r. The height of the rectangle must, therefore, be about 0.02 in. This length assumed, the rectangle would have a base of 12.62 in., and an area of  $12.62 \times 0.02 = 0.2524$  sq. in. This differs from the required area by only  $0.31 - 0.2524 = 0.0576$  sq. in. If, then, we draw within AB a square the side of which is 6.32 in. long, it will differ from the larger square by a gnomon, x'By', the area of which is only 0.06 sq. in.—far too small an amount to represent in the diagram. Nevertheless, if a greater degree of accuracy is required

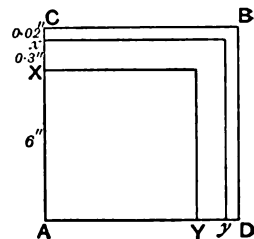


FIG. 4.

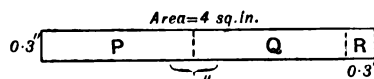


FIG. 5.

it can readily be obtained by throwing this gnomon into the form of a long rectangle, and repeating the former argument. The working gathered up into the form most convenient for calculation is:

$$\begin{array}{r} 40 \text{ (} 6 + 0.3 + 0.02 \\ 36 \\ \hline 4.00 \\ 3.69 \\ \hline 0.3100 \\ 12.62 \quad 0.2524 \\ \hline 0.0576 \end{array}$$

In each of these examples the number the root of which was sought was between 1 and 100. It

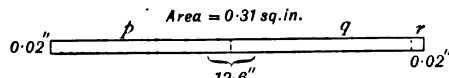


FIG. 6.

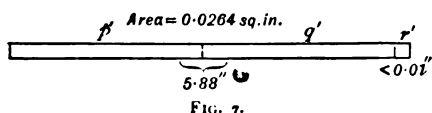
is most convenient to regard this as the standard form to which a number should always be reduced before applying to it the foregoing argument or the process based on the argument. The reduction is to be brought about, of course, by dividing or multiplying the given square by some power of 100. The root obtained must correspondingly be multiplied or divided by the same power of 10. Thus if we were required to find the square root of 1444, we should reduce it to the form 14.44 by

dividing it by 100, and should multiply the root ( $= 3.8$ ) by 10, reaching 38 as the result sought. Similarly, if the root sought were that of  $0.00001444$ , we should first multiply this number by  $100^3$ , and should divide the root of  $14.44$  by  $10^3$ , obtaining  $0.038$  as the required root. This process is in practice equivalent to the customary marking off of the digits of the given number in twos, working forwards and backwards from the decimal point.

Finally, by the method adopted it is quite easy to demonstrate to more advanced pupils the rule that when  $n$  figures of the root have been obtained by the ordinary process  $n-1$  more may be obtained by division. Suppose it is required to find the square root of 867 correct to three decimal places. We shall actually determine the square root of 8.67 to four decimal places, and then multiply the result by 10. The first steps are as follows:

$$\begin{array}{r}
 8.67 \text{ (} 2+0.9+0.07 \text{)} \\
 4 \phantom{00} \\
 \hline
 4.9 \phantom{00} 4.67 \\
 \phantom{00} 4.41 \\
 \hline
 5.84 \phantom{00} 0.2600 \\
 \phantom{00} 0.2336 \\
 \hline
 5.88 \phantom{00} 0.0264
 \end{array}$$

Interpreted graphically, the remainder implies a gnomon which can be arranged as a rectangle (Fig. 7), the area of which is  $0.0264$ , while its



base is  $5.88$  (i.e.,  $2 \times 2.94$ ) plus the side of the square  $r'$ . Of this side we know that its length is less than  $0.01$ , so that the area of the square must be less than  $0.0001$ . As before, we have to find the height of the rectangle. If  $0.0264$  were the area merely of the double rectangle  $p' + q'$ , the height would be obtained exactly by dividing by the length of the base,  $5.88$ . It cannot be obtained exactly, because the given area includes that of the square  $r'$ . But this is less than  $0.0001$ ; so that if we neglect it and act as if  $0.0264$  were the area of the part  $p' + q'$  alone, the error in the calculated height of the rectangle must be less than  $0.0001/5.88$ , that is, less than  $0.00002$ . Thus it will not affect the result of our calculation until we reach the fifth decimal place. We may conclude, then, that the height of the rectangle is  $0.0264/5.88 = 0.00448 \dots$  minus an amount which is less than  $0.00002$ . Thus to four places  $\sqrt{8.67} = 2.9445$ , and  $\sqrt{867} = 29.445$  to three places.

The generalisation of this result is obvious. If the root has already been obtained to  $n$  places the side of  $r'$  will be less than  $1/10^n$  and its area less than  $1/10^{2n}$ . The error in the calculated height of the rectangle due to neglecting the area of  $r'$  will, therefore, be less than the quotient of  $1/10^{2n}$  by twice the root already obtained. The

divisor here can never be less than 2, since the method of calculating the root always secures that the latter shall be not less than 1. Thus the error must always be less than  $0.5/10^{2n}$ , or  $5/10^{2n+1}$ . That is, having calculated  $n$  decimal places of the root in the ordinary way, we may determine the rest by dividing the remainder by twice the root already obtained, and may be sure that the result will not begin to be affected with error until the  $(2n+1)^{\text{th}}$  place is reached. It should, however, be noted that in some cases the digit in the  $2n^{\text{th}}$  place will be affected by the influence of this error upon the  $(2n+1)^{\text{th}}$  digit. For example, suppose that the root has already been obtained to two decimal places, and that its double is a little more than 3, while the quotient of the remainder by this number is  $0.00279 \dots$ . In this case the error due to neglecting the square  $r'$  would be a little less than  $0.0001/3$ , or about  $0.00003$ . Thus the correct height of the rectangle is about  $0.00276$ . Whether we took account of the square,  $r'$ , or whether we neglected it, we should, therefore, take 28 as the two additional figures of the root obtained by division. On the other hand, if the quotient were  $0.00277 \dots$  the subtraction of the error would make the last digit less than 5, and we should have to take 27 as the correct addition to be made to figures of the root already obtained. It is necessary, therefore, in applying the rule, to consider the value of the  $(2n+1)^{\text{th}}$  place obtained by division in conjunction with the (approximate) value of the quotient of the area of the neglected square by twice the root already obtained. With this reservation we may formulate the rule in the form that when any number of decimal places of the root have been calculated by the ordinary rule, a further and equal number may be obtained by dividing the remainder by twice the root already calculated.

## SECONDARY EDUCATION IN NEW ZEALAND.<sup>1</sup>

THE schools usually included in the list of secondary schools in this report which were open in 1909 were thirty-one in number. Four of the endowed secondary schools had not been established at the end of the year, although there were district high schools in the same places which were to some extent assisted by funds derived from the endowments of the secondary schools. The number of district high schools in operation during the year was sixty-two.

The total number of pupils attending the thirty-one secondary schools in the last terms of 1908 and 1909 respectively were as follows:

|  | 1908  |       |       | 1909  |       |       |
|--|-------|-------|-------|-------|-------|-------|
|  | Boys  | Girls | Total | Boys  | Girls | Total |
| Total ...                              | 2,590 | 1,737 | 4,327 | 2,911 | 1,945 | 4,856 |
| Number of boarders (included above)... | 557   | 136   | 693   | 566   | 140   | 706   |

In the same years these schools were staffed as follows:

<sup>1</sup> Extracted from the Thirty-third Annual Report of the Minister of Education, New Zealand, 1910.

|                    | 1908 |       |       | 1909 |       |       |
|--------------------|------|-------|-------|------|-------|-------|
|                    | Men  | Women | Total | Men  | Women | Total |
| Regular staff ...  | 125  | 91    | 216   | 131  | 93    | 224   |
| Part-time teachers | 43   | 25    | 68    | 44   | 33    | 77    |

The average number of pupils per teacher (excluding part-time teachers) is thus seen to have been 20 in 1908 and 21·7 in 1909.

The average number of pupils on the roll of the secondary departments of district high schools in the two years, 1908, 1909, respectively, were :

|           | 1908 |     |       | 1909 |     |       |
|-----------|------|-----|-------|------|-----|-------|
| Boys ...  | ...  | ... | 1,167 | ...  | ... | 1,100 |
| Girls ... | ...  | ... | 1,191 | ...  | ... | 1,063 |
| Total ... | ...  | ... | 2,358 | ...  | ... | 2,163 |

Besides the head teachers, who generally take some part in the secondary instruction, there were employed in 1908 in the secondary departments of district high schools 102 special assistants—55 men and 47 women—and last year 93 special assistants—namely, 43 men and 50 women. The average number of pupils per teacher was 23·1 in 1908 and 23·3 in 1909.

In addition to those in secondary schools and in the secondary departments of district high schools there should properly be included in the number of pupils under secondary instruction in the Dominion (a) the pupils attending certain day classes in connection with technical schools, which in this regard may be called technical high schools; and (b) the pupils in various institutions for the secondary education of Maori boys and girls.

The total numbers on the roll of technical day schools at any time during the years 1908 and 1909 were as follows :

|            | 1908 |     |     | 1909 |     |     |
|------------|------|-----|-----|------|-----|-----|
| Boys ...   | ...  | ... | 307 | ...  | ... | 345 |
| Girls ...  | ...  | ... | 392 | ...  | ... | 501 |
| Totals ... | ...  | ... | 699 | ...  | ... | 846 |

The following was the average roll of pupils in secondary schools for Maoris (all of whom were boarders) for the respective years :

|            | 1908 |     |     | 1909 |     |     |
|------------|------|-----|-----|------|-----|-----|
| Boys ...   | ...  | ... | 136 | ...  | ... | 169 |
| Girls ...  | ...  | ... | 167 | ...  | ... | 191 |
| Totals ... | ...  | ... | 303 | ...  | ... | 360 |

Summarising all these figures, and excluding pupils in the lower departments of such schools, we obtain the following statement of the numbers receiving some form or other of secondary instruction during the year 1909 (as nearly as can be estimated) :

|                             |     |     |       |
|-----------------------------|-----|-----|-------|
| Secondary schools ...       | ... | ... | 4,834 |
| District high schools ...   | ... | ... | 2,163 |
| Technical day schools ...   | ... | ... | 846   |
| Maori secondary schools ... | ... | ... | 360   |
| Total ...                   | ... | ... | 8,203 |

The corresponding total for 1908 would be 7,742, so that the decrease in the number of secondary-school pupils at district high schools has been more than balanced by the increases in the three other groups of schools giving secondary instruction, the total net increase being about 460.

The population of the Dominion (exclusive of the Cook Islands) was estimated as 1,008,373 at December 31st, 1908, so that the proportion of persons receiving some form of secondary instruction in publicly recognised institutions during 1909 was thus 81·4 per 10,000 of the population. In 1906 the corresponding proportion was 72·7 per 10,000, so that there has been a considerable development of secondary education in the Dominion during the three years 1906–9. It may be interesting to note that in Württemberg (a typical German State), New York, and Chicago the latest available figures (1905–6) show the corresponding proportions to have been respectively 71·6, 51·8, 66·8 per 10,000 of the population; while in Switzerland the proportion reaches the astonishingly high standard of 203·1 per 10,000.

**SALARIES.**—The total amount of the salaries paid to the regular staffs of secondary schools as at the rates paid at the end of the year was £51,681. As might be expected, the salaries paid in the different secondary schools varied considerably; the average for principals and assistants, and that for men and women, respectively, are shown below to the nearest pound :

#### Salaries in Secondary Schools.

|                 | December, 1908 |       |     | December, 1909 |       |     |
|-----------------|----------------|-------|-----|----------------|-------|-----|
|                 | Men            | Women | All | Men            | Women | All |
| Principals ...  | 404            | 341   | 422 | 474            | 361   | 437 |
| Assistants ...  | 224            | 147   | 190 | 230            | 153   | 196 |
| Whole staff ... | 261            | 168   | 222 | 269            | 175   | 230 |

NOTE.—The salaries of part-time teachers are excluded from the above comparison.

In the secondary departments of district high schools salaries are uniform. The average salaries actually paid to the assistants, in addition to the sums paid by way of extra salary to the head teachers, were, in December, 1908 and 1909 :

|                                     | 1908  |       |      | 1909  |       |      |
|-------------------------------------|-------|-------|------|-------|-------|------|
| Men ...                             | £ 193 | s. 17 | d. 7 | £ 198 | s. 2  | d. 1 |
| Women ...                           | £ 145 | s. 4  | d. 3 | £ 154 | s. 10 | d. 0 |
| All secondary-school assistants ... | £ 171 | s. 9  | d. 1 | £ 174 | s. 13 | d. 2 |

(The scale of salaries is the same for men and women.)

The total amount paid in salaries from receipts from Government for the secondary departments of district high schools, including the special payments to head teachers, was £18,618; in 1908 it was £20,097.

The professional qualifications of the secondary-school teachers of the Dominion are shown below :

#### Status of Secondary Teachers (Regular Staff only), December, 1909.

|   | Secondary Schools | District High Schools (Secondary Departments) |
|---|-------------------|---|
| Principals—   |                   |   |
| Graduates ...   | 29                | 21  |
| Holding certificates or other qualifications (excluding graduates) .. | 2                 | 41  |
| Assistants—   |                   |   |
| Graduates ...   | 151               | 61  |
| Certificated (excluding graduates) ..                                 | 12                | 24  |
| Uncertificated ...  | 30                | 3   |
| Total ...   | 224               | 150   |

**FREE SECONDARY EDUCATION.**—At the end of 1909 the secondary schools giving free tuition to duly qualified pupils, and receiving grants therefor under the Act, were twenty-eight, as against twenty-seven for the preceding year. The total number of pupils on the roll of these twenty-eight schools, exclusive of pupils in the lower departments of the schools, was 4,088, and out of this total, 3,295, or 81 per cent., were given free places under the regulations. The total annual payment at the rate paid for the last term of the year would be approximately £34,629; the approximate average cost to the Treasury was therefore £10 10s. 2d. per free pupil.

In addition, free tuition was given to 157 others who were holders of scholarships or of exhibitions granted by these schools, or by endowed secondary schools not coming under the conditions for free places, making the total number of free places held at secondary schools 3,452, or 74 per cent. of the roll of all these schools. Moreover, in reckoning the amount of free secondary education in the Dominion must be included the pupils in attendance at the secondary classes of district high schools, 1,891 in number, all but a comparatively small number of whom were free pupils, receiving free tuition at an average cost to the Government of £9 16s. 10d. per pupil. There should be added also those receiving free education in Maori schools, 124 in number, and the holders of certain free places in technical schools, numbering 846. There is thus an approximate total of 6,313 pupils receiving free secondary education, exclusive of those holders of free places in technical schools who were art students, or were evening students, or were taking courses, which may be more approximately described as technical rather than as secondary.

**SCHOLARSHIPS.**—The scholarships at secondary schools and district high schools are of four kinds :

- (i) Junior national scholarships.
- (ii) Education Board scholarships.
- (iii) Foundation or governors' scholarships, given by the governing bodies of secondary schools.
- (iv) Private scholarships, endowed by private donors.

(i) **Junior National Scholarships.**—The scholarships are allotted to the several education districts practically on the basis of population, as in each district there is offered annually one scholarship for each 4,000 or part of 4,000 children in average yearly attendance. The scholarships are awarded by the Education Boards on the results of an examination conducted by the Education Department, and the Boards exercise a certain control over the holders, and pay to them from time to time the amounts falling due.

(ii) **Education Board Scholarships.**—The scholarship funds of the Boards are provided by grants which, although not statutory, are of old standing, and amount to 1s. 6d. per head of the average attendance. The conditions of the scholarships are determined by regulations approved in the case of each Board by the Minister of Education. For the award of the junior scholarships all the Boards now use the Junior National Scholarship

examination, and for their senior scholarships nearly all use the Civil Service Junior examination; but the awards themselves and the subsequent control of the holders are entirely in the hands of the Boards. The totals of the Board scholarships in the various districts are for the whole of New Zealand :

| Number of scholarships : |     |     |     |     |     |     |     |
|--------------------------|-----|-----|-----|-----|-----|-----|-----|
| Boys                     | ... | ... | ... | ... | ... | ... | 326 |
| Girls                    | ... | ... | ... | ... | ... | ... | 207 |
| Total                    | ... | ... | ... | ... | ... | ... | 533 |

Total expenditure of Boards on scholarships in 1909 ... .. £8,694.

(iii) **Foundation (or Governors') Scholarships.**—There are also a certain number of foundation scholarships given by the governors of the schools not offering free places under the Act, as well as extra scholarships given by the governors of schools providing such free places.

(iv) The *private scholarships* are derived from funds provided by private donors at certain schools, by bequest or otherwise.

The number of foundation and private scholarships in the last term of 1909 was 191. Of the holders, sixty-four were also Government free pupils under the regulations. The total value of the scholarships in cash was £1,504 16s. In addition, free tuition was given by the schools to holders of foundation and private scholarships to the value of £683, the value of the Government free places already mentioned not being included in this amount.

**FINANCE.**—The income of secondary schools is derived from the following sources :

- (i) Rents from the special reserves allocated to them by statute.
- (ii) Statutory grants, given in lieu of special reserves.
- (iii) Income from the secondary-school reserves controlled by the School Commissioners, divided among the secondary schools in the several land districts in proportion to the number of pupils, exclusive of lower departments.
- (iv) Interest upon moneys derived from the sale of reserves, and invested in accordance with the Education Reserves Act.
- (v) Statutory capitation upon free pupils under the Act.
- (vi) Capitation on pupils in classes recognised under the Manual and Technical Instruction Regulations.
- (vii) Special grants from Government for buildings and apparatus.
- (viii) Statutory subsidies on voluntary contributions.
- (ix) Tuition fees of pupils.
- (x) Boarding fees of pupils.
- (xi) Miscellaneous sources, such as interest on moneys other than those obtained by the sale of reserves, donations, and special endowments (for scholarships, prizes, &c.), rent of premises, &c.

The revenue derived from the sources (i) to (iv) is the income derived from endowments, and the "net annual income derived from endowments" is the average for the three preceding years of this revenue, less the expenditure upon the endowments and investments and upon buildings, and less mortgage and other charges.

For the whole Dominion, if there are taken into

account only the secondary schools that admit free pupils, we find :

|   |         |
|---|---------|
| Total number of pupils, excluding lower departments ... ..                                  | 4,421   |
| Total net income from endowments (average of three years ending December 31st, 1908) ... .. | £11,775 |
| Net income from endowments per head ... ..  | £2'66   |
| Approximate annual rate of capitation ... ..  | £10'40  |
| Total available net income per free pupil for salaries and management ... ..                | £13'06  |
| <hr/>   |         |
| Total expenditure on salaries of staff ... ..   | £45,081 |
| Total expenditure on management ... ..  | £2,851  |
| Total expenditure on staff, salaries, and management ... ..                                 | £47,932 |
| Expenditure per head on staff salaries ... ..   | £10'60  |
| Expenditure on management ... ..  | £0'64   |
| Total expenditure per head on staff salaries, and management ... ..                         | £11'24  |

The last figure given shows as nearly as may be the actual cost per annum for each pupil, exclusive of those in the lower departments. If we include all the secondary schools this average becomes £13'43 per head.

GENERAL REMARKS.—A careful analysis of the figures, compared with those for the preceding years, shows that out of the total number of pupils entering the upper departments of secondary schools :

|                |                     |
|----------------|---------------------|
| 25'0 per cent. | stay one year,      |
| 33'5 "         | two years,          |
| 6'9 "          | three years, and    |
| 34'6 "         | four years or more. |

Hence, the average time spent at a New Zealand secondary school by each pupil who enters is a little over two years and a half, exclusive of any time spent in the lower department. This is greater than the average duration of a pupil's stay at a high school in New York or Chicago (where it is about two years), but less than the corresponding period in England, Scotland, Germany, or Switzerland. On the other hand, the proportion of the population receiving secondary education at any one time in New Zealand is larger than in Great Britain, although less than it is in Germany, Switzerland, and some other European countries. Economic reasons are, no doubt, to some extent at the root of the difference; indeed, for a young country, the average length of a pupil's course in our secondary schools may be considered fair. It is not, however, long enough to secure the greatest benefit to the community from the secondary-school system, and every effort should be made to extend it.

Besides the economic reasons referred to, which lead parents to withdraw their boys and girls from secondary schools to enter employment, there are three main causes operating in New Zealand to shorten the average length of the secondary-school course. One of these is that the undue length of time for which pupils are kept in the preparatory classes of the primary schools carries with it the consequence of an unduly high average age at which pupils gain a certificate of proficiency or otherwise qualify for entrance to a free place at a secondary school. A second cause tends to cut off the secondary course at the other end. Even

for those who do not propose to enter the University the Matriculation examination has come to be regarded as a kind of leaving examination; but the standard of that examination has hitherto been so low that it has been quite easy for a girl or boy of average ability to pass it after spending three years at a high school, and many have taken only two years to do so. The University has now set as the standard of work expected the amount of work that might reasonably be covered in a four-years course at a secondary school; and although this does not require actual attendance at a secondary school for four years, yet the new rule will almost certainly have the healthy result of prolonging the stay of pupils at such schools.

The last cause contributing to the shortness of secondary-school life is of a more general character; it is, in fact, the absence in the community of a hearty and thorough belief in the advantages of education, or, at all events, of secondary education. The average British parent can hardly be expected to grow enthusiastic over the intellectual training to be derived by his children from the study of mathematics and foreign languages, or even over the moral training the schools afford; if he does not see clearly that his sons and daughters are being prepared for the technical work of their future life he is apt to be somewhat sceptical in regard to the advantages of any education beyond the primary stage. To some extent his scepticism has probably been justified in the past; but the present movement towards making the work of the high schools more vocational in character will, if properly carried out, meet this objection. There seems to be no reason to fear that a thorough mental training could not be obtained as well through the medium of a vocational course as from a course based on old-fashioned lines. Such a vocational course should embrace, *inter alia*, a sound study of English literature, history, and civics, and a first-hand knowledge of the elementary scientific principles underlying the common facts of life, with emphasis upon applied science (including agriculture and commerce) in the case of boys, and upon domestic science and art in the case of girls. If the programmes of our secondary schools were adjusted in this direction, probably there would be a greater inducement for parents to keep their boys and girls longer at school; at all events, there would be less excuse if they did not do so.

The following subjects are common to all the secondary schools: English, French, Latin, arithmetic, and other branches of elementary mathematics, and science. It is significant that so far hardly a single girls' high school provides a full course in domestic science or hygiene; several of the schools are, however, taking steps to supply such courses. It is equally true in regard to the science of boys' schools that only in two or three cases does it appear that the science is chosen with a definite view to its bearing on agriculture. It would be well if there were more. In schools with suitable environment there seems to be no study that could be more profitably



pursued or that could more worthily occupy the attention or enlist the enthusiasm of teachers and pupils alike.

The course of instruction usually followed in the secondary departments of the district high schools of the Dominion has, hitherto, been drawn up largely with a view to prepare pupils for the Civil Service Junior, Matriculation, and Education Board Scholarship examinations. In too many cases the curriculum itself and the methods of teaching have been dominated by examination results. It is, however, gratifying to note that in several education districts an earnest endeavour is being made to bring the course of instruction more into harmony with local conditions by providing suitable rural courses, based generally on the suggestive programme issued by the Department last year. Such courses, admittedly tentative in character, are now in operation in four districts, and there are indications that similar courses will be provided in other districts as soon as ways and means permit. The course for boys is not intended to fit them for carrying on agricultural and pastoral pursuits, but is intended to give them a knowledge of scientific principles upon which the successful practice of these pursuits depends. Similarly, the course for girls is intended to fit them for the work which they, as members of families engaged in such pursuits, may have to perform or superintend.

While it is too early yet to judge of the effect of this departure from old-fashioned methods of secondary education, it will be a matter for surprise if it is not found to be altogether beneficial from the point of view both of the schools and of the pupils. It should at least have the effect of prolonging the period of secondary education in rural districts.

#### THE CHILDREN OF HENRY VIII.

AT last the "Political History of England in Twelve Volumes," each volume by one who has made the period his own, is complete, and there is now no excuse for school teachers to be behindhand in their knowledge of the history of our country. The volumes are not, of course, easy reading. The authors have studied, not to write in stately diction, but to put down in plain, but necessarily well-packed sentences, what is known of our political (and, to a certain extent, other) history from the beginning of things to the end of Victoria's reign. In this volume,<sup>1</sup> the sixth in chronological order, but the last to be published, Prof. Pollard has told us, largely from the *Calendar of State Papers*, both foreign and domestic, the history of the English Church-State from the moment when Henry VIII. left it in a condition of undecided tendencies, through the extreme swings of the pendulum in the brief reigns of Edward VI. and Mary, and the more steady progress of the long reign of Elizabeth.

The great problem of the age was the question of religion. Henry VIII. having disendowed the clergy, some of them entirely, some partially, and having put an end to the jurisdiction of the Bishop of Rome over the Provinces of Canterbury and York, the second half of the sixteenth century had to settle what were to be the relations between the English Crown, the clergy of these provinces, and the Pope, and, incidentally, what were to be the creed and form of government to be adopted by the now independent and isolated Church of England. As a similar problem was also agitating every country in Europe, the question was one of international as well as of internal politics, and this international policy was affected not only by the question of religion, but by the newer questions of commerce and dynastic rivalry. "The movement of political forces," Prof. Pollard says (p. 442), "like the ebb and flow of the ocean, is determined by inert and voiceless masses," and (p. 323) "the deeper current of political tendency is hidden beneath the surface ebb and flow of diplomatic intercourse."

Now from the very beginning of our commerce the interests of the wool trade had bound England closely to the Netherlands, and whoever ruled the "waterish Burgundy," as Shakespeare called it, must needs be our ally, whether rebellious "brewers" like Arteveld, or Habsburg archdukes of the Austrian or Spanish branch of that powerful family. The necessity for this alliance is shown both in Mary Tudor's marriage and in the support which Elizabeth gave to the "sea beggars" (pp. 330-1) in their seizure of Brille, which inaugurated the revolt against Spain. Dynastic questions were also involved. In England, we had the rival claims of the direct Tudor line, and its Suffolk and Stuart branches, which led to the revolt of Northumberland and the long duel between Elizabeth Tudor and Mary Queen of Scots. In France, the King of Navarre had to fight for his crown against the various candidates who supported the Catholic League, and in the Netherlands Philip II. fought a losing battle against the claim to local independence, which eventually became a duel between Orange and Habsburg.

Prof. Pollard begins with the minority of Edward VI., during which the Duke of Somerset, as Protector, attempted to solve such problems as the union of England and Scotland, the adjustment of the new agricultural difficulties, that were partly the result of the dissolution of the monasteries, and the advance of the English Church in the direction which Henry VIII. was contemplating at his death. When he fell in October, 1549, Warwick succeeded to his influence, though not to his office. He preferred, in August, 1551, to end the King's minority, and work through him on the council, and the next two years were filled, as the previous years had been, with intrigues among the councillors, both lay and ecclesiastical, concerned partly with Church questions, partly with personal ambitions. Of the religious changes of that reign and of its

<sup>1</sup> "The History of England, 1547-1603." By A. F. Pollard. xxv + 524 pp. (Longmans.) 7s. 6d. net.

further spoliation of ancient endowments, there is no need now to speak.

The squalid anarchy of Edward's reign was followed by the sad tragedy of Mary's. Her attempt to restore what Prof. Pollard somewhat strangely calls in his chapter heading (p. 112) "*the Church*" "was no part of the counter-reformation" (p. 173). Of her friend, Cardinal Pole, Prof. Pollard says (p. 125): "He seemed to have nothing to learn and nothing to forget. . . . God had ordained the Papacy; all the evils of his age were due to lack of faith and disobedience"; and thus Mary was entirely out of touch with the tendency of the age. Her Spanish marriage, though following the traditions of a Burgundian alliance and thus in accord with our economic policy, led to a disastrous war with France. Her <sup>per</sup>secution of Protestants made "Rome" as hateful to Englishmen as her husband's country (for Englishmen thought more of her three hundred victims than of Alva's thousands in the Netherlands). To crown her miseries, the anti-Spanish policy of Paul IV. led to estrangement with the Papacy, and in 1558 she died a broken-hearted woman.

With the accession of Elizabeth at the age of twenty-five, England began again, as it were, to face the problems of the century. The new Queen surrounded herself with young statesmen who had never, except during Mary's short reign, known the Papal supremacy, and, until the death of Mary Stuart's French husband in 1560, she had the protection, for his own purposes, of her brother-in-law, whom, however, for obvious reasons, she refused to marry. During that period she had, with the help of her Parliaments, taken her position as "governor" of the English Church, and had laid down, in the Act of Uniformity, the lines on which that Church was to be shaped. "The rest of her reign" (p. 236) "was mainly occupied in defence of the positions she had seized by 1560."

But the idea that England was a righteous innocent attacked by wicked foreigners has no countenance from Prof. Pollard. "In reality England was the aggressor, and few monarchs would have borne protracted provocation with Philip II.'s patience" (p. 190). "Fortunately, the loose ideas which governed the mutual relations of States in the sixteenth century permitted considerable latitude of offensive action under the cloak of peace" (p. 226), and thus Elizabeth was enabled to use, for her own purposes, the struggles of Netherlands and of Huguenots, and especially the "piracy" of Drake and other Devonshire men, at the cost of Spanish monopoly of the new world. Admirers of Kingsley's "*Westward Ho!*" and of his school will do well, incidentally, to remark that "religion was a very subordinate motive in the expansion of England; and it is a curious speculation what Drake's theological opinions would have been, if Spain had turned Protestant" (p. 306: see the whole of that page).

The story of Mary Queen of Scots need not detain us: we commend to those who still believe

in the "nineteen weary years" the following sentences from p. 381: "Her captivity had its compensations; she hunted, visited Buxton to take the waters, was served with sixteen dishes at each meal, kept an establishment of some fifty servants, and enjoyed a private income of 30,000 crowns from her French property, which she mostly spent in political intrigues. She would have fared a great deal worse in Scotland; and the principal hardship she endured by her detention in England was the restraint of her ambition."

Prof. Pollard regards the revolt of Norfolk and his friends in 1569 as "the great crisis of the reign." Henceforward, until 1588, there is a gradual drifting into war with Spain, a drift consisting of all the events of those twenty years in France, Scotland, the Netherlands, and in England itself, and with the defeat of the Armada Elizabeth's work was practically done. Her old friends one by one passed away and new men arose. The younger Cecil and Raleigh differed on matters of international policy, not, Prof. Pollard thinks (pp. 411-2), on the question of war and peace, but on the method of warfare, Cecil advocating a policy of Continental warfare, Raleigh preferring to strike at Spain by sea. Elizabeth's very success had made her methods no longer necessary, and with the growth of Puritanism and of its rival, Arminianism, with the increasing tendency on the part of Parliament to criticise and question the policy of the rulers, and with the anxiety of the nation as to the great Queen's successor, she seemed to "lag superfluous on the stage" for the last fifteen years of her life. She should have died in 1590.

A few words must suffice for the constitutional history of the period, which Prof. Pollard thinks has not been adequately treated by any writer as yet. "Sixty-two years of Tudor monarchy," he says somewhat humorously at the beginning of his volume (p. 1), "had not (in 1547) impaired the constitutional importance of the monarch," and government was conducted in all its branches by the King (whenever capable) and the Privy Council. On the position of this body and its relation to the prerogative courts, the reader will find some useful information on p. 94. The Crown and its ministers initiated all legislation, and thus put an end to "the 'separation of powers' which characterised the later Middle Ages" (p. 149). Prof. Pollard does not believe in the "packing" and "intimidation" of the House of Commons which have usually been cited to explain the changes in parliamentary laws from 1529 to 1559. He grants the creation of boroughs, but, after an examination of the returns, he finds that many members from these new constituencies were often opposed to the Crown (pp. 75-6, 126-7, 199. &c.), and on pp. 131-2 he enters at greater length than we can afford here into the reasons for the different complexions of the successive Parliaments. To state the result briefly, he thinks the average layman left matters of religion to be decided by the authorities. "Freedom of worship was not permissible

to those who could not agree to differ, and when differences were dangerous to peace, the interests of order required uniformity" (p. 23). "A civil war, in which [the Catholic] north and west should be ranged against [the Protestant] south and east, was not impossible in the sixteenth any more than it was in the seventeenth century" (p. 190).

Therefore Elizabeth had few Parliaments, and those of short duration. At the dissolution in 1567, she intended to summon no more, thinking that "three Parliaments were enough for one reign" (p. 362), and Sir Thomas Smith, one of the statesmen of her time less known than he ought to be, in praising the constitution of England, asks, in admiration, "what countries have so few Parliaments?" Of those who refused to conform to Elizabeth's Church settlement Prof. Pollard has much to say. The Roman Catholic movement "was inspired and directed from abroad by men who had come under the influence of the Tridentine decrees [and was therefore, unlike Mary's changes, "part of the counter-reformation"]". The Catholicism of English Romanists became less English and more Roman; and it tended to fall under the domination of foreign and anti-national forces" (p. 371). The Puritan movement dated from the days of exile under Mary, if not earlier, and was an attempt to effect further "reform" in the Church of England than Elizabeth was prepared to make. Puritans were members of the established Church, largely clerical, who came at last to dislike bishops and to wish to make the Church Presbyterian. The extreme reformers, who wished to "reform without tarrying for any," whether Prince or Parliament, and who became separatists, began earlier than Prof. Pollard thinks (p. 367). Robert Browne was not their originator, though he was the first to publish their opinions.

There are a few phrases in the book which are somewhat obscure in their meaning, owing sometimes to unusual terminology, and we think Prof. Pollard has not considered the treatment of the Papal Bulls about America in the Cambridge Modern History, i. 23-4. But in spite of these (very minor) points, we are thankful for his volume, which should, with its companions, find a place in every school library. There is a very full bibliography, as well as two maps and an adequate index.

#### PERSONAL PARAGRAPHS.

**D**R. FRY is to be succeeded at Berkhamsted by Mr. Charles H. Greene. Mr. Greene has been an efficient second in command for twenty years. It is particularly gratifying in these days, when posts often go to young and untried men, and seldom go to one of the school's own staff, that the governing body has had the courage to cut loose from the conventions. In this case the work of twenty years is suitably rewarded, and the school does not lose that intimate knowledge of its

conditions which must be an important factor in its future progress. Add to this that in the present case a layman succeeds a vigorous churchman, and it will be seen that the electing body has acted with remarkable independence. May this quality commend itself to many appointing bodies!

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MR. GREENE has for many years been a leading member of the Assistant-masters' Association, and two or three years ago served a year of office as chairman. This office is one of the most exacting filled, in the education of this country, by volunteers. In this capacity, Mr. Greene had much to do with the passing into law of reasonable provisions for securing the tenure of assistant-masters engaged in secondary schools. In all secondary schools under the Board of Education, the assistants are the servants, not of the headmaster, but of the governing body.

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ANOTHER case of the due recognition of long service is the appointment of Mr. A. G. Latham to the newly created professorship of modern languages at Armstrong College, Newcastle-on-Tyne. Mr. Latham, who is M.A. of London and Durham, has been engaged for seventeen years in the department of modern languages at the College.

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ANOTHER appointment at Armstrong College is to be recorded. Prof. F. J. C. Hearnshaw, who has long been a contributor to THE SCHOOL WORLD, has been appointed to the newly established professorship of modern history. For the last ten years he has been professor of history at Hartley University College, Southampton. In the proper spirit of a historian he has thrown himself into many movements connected with local antiquities and history.

\* \* \*

WE have to record the death of the Rev. Benjamin Whitefoord, Prebendary of Salisbury Cathedral. He was born in 1848, matriculated at Oxford in 1869, became a commoner of New College in 1871, and took third classes in Moderations and Lit. Hum. After taking his degree, he obtained a fourth class in jurisprudence. He played chess for Oxford against Cambridge in 1873. He served a short time as assistant-master at Lucton Grammar School, Herefordshire, was ordained deacon in 1877, and priest in 1878, and became curate of St. Maurice, Winchester. In 1883 he was appointed principal of the Theological College at Salisbury. Here he did excellent work for twenty-four years, imparting a thoroughly practical training to his many candidates for holy orders. He resigned this office in 1907, having accepted the benefice of Potterne, Devizes.

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THE headmaster of Newark Grammar School, Mr. E. A. Menneer, has resigned his office, which he has held for six years, having succeeded Dr. Noakes in 1904.

THE Crypt Grammar School, Gloucester, is to lose an old-boy headmaster in the person of Mr. J. E. Barton, who has accepted the headmastership of Wakefield Grammar School. Mr. Barton was educated at the Crypt School, and at Pembroke College, Oxford. He took first classes in classical "Mods" and Lit. Hum., and the Newdigate prize for English verse. He was for some time sixth form and senior classical master at Bradford Grammar School. He is a vice-president of that progressive and admirable movement, the Workers' Educational Association.

\* \* \*

IN Emeritus Professor Flint, Scotland—and Europe—has lost an eminent theologian and philosopher. He was born in Dumfriesshire in 1838, went early to the University of Glasgow, and entered the Divinity Hall of the Church of Scotland. Licensed to preach in 1858, he was called to the East Church, Aberdeen, in 1859, and transferred to a quiet country parish—Kilconquhar, in Fife—in 1862. Here he laid the foundations of his immense erudition. In 1864 he was elected to the chair of moral philosophy at Aberdeen, and held it for twelve years, until he was transferred to the chair of Divinity at Edinburgh in 1876. It was in 1874 that he published the work by which he will probably continue chiefly to be known, "The Philosophy of History in France and Germany." He was also a stout defender of the fundamental doctrines of Theism. Two of his volumes on this subject, "Theism" and "Anti-Theistic Theories," are still very popular. His ideals of sound learning and devotion to duty strongly influenced the rising ministry of the Church of Scotland. Prof. Flint resigned his chair in 1903, in order to devote himself to the completion of his several great literary schemes, but unfortunately has not been able to carry them through. He took little part in ecclesiastical affairs, but in 1882, when the Church of Scotland was threatened with disestablishment, he steadfastly defended the principle of national religion.

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MR. JAMES CURRIE, the principal of the Gordon Memorial College at Khartum and Director of Education in the Sudan, has made his yearly report. The general educational development of the Sudan is being carefully watched and fostered. Mr. Currie remarks, in particular, on the extraordinary popularity of the military school among the Sudanese of all ranks and races.

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A FAMILIAR figure in Cambridge will be seen there no more. Prof. J. E. Bickersteth Mayor, Regius professor of Latin, died on December 1st. He was born in 1825, educated for some four years at Christ's Hospital, and then at Shrewsbury under Dr. Kennedy, and was placed third in the classical tripos in 1848. While teaching at Marlborough between 1849 and 1853 he produced his learned book on the Thirteen Satires of

Juvenal, which reached its fourth, improved, and final edition in 1886. He returned to St. John's College as a lecturer, and was elected to succeed H. A. J. Munro in the professorship of Latin in 1872. He will be widely remembered for his advocacy of a moderate and sensible vegetarianism. He was president of the Vegetarian Society from 1882 to his death. For three years he acted as University Librarian. His portrait, painted by Herkomer, is preserved in the hall of St. John's College. As a boy he showed little promise, but was an ardent teacher and antiquarian. As a lecturer he was too compact of matter to be popular. He was a genial companion, and a splendid talker on a great variety of subjects. He will always be Mayor of Juvenal fame.

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BOTH in attainments and experience the governors have secured a well-qualified headmistress for Allen's Girls' School, Dulwich, in succession to the late Miss I. F. Coulter. The new headmistress will be Miss M. A. Howard. She was educated at Brighton High School, Girton College, Cambridge, and the Cambridge Training College. She took honours in the historical tripos at Cambridge, is a B.A. (Lond.) and M.A. (Dubl.). She has taught at Nottingham High School, Blackheath High School, the London Day Training College, and been headmistress of the County Secondary School, Bermondsey.

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MR. WALKER, the late High Master of St. Paul's School, was a man of few words, and few words, we take it, need be written about so well-known a figure in English education. He rose by his own merits, showed as a tutor of Corpus Christi College, Oxford, that he was a born teacher, made Manchester Grammar School by his teaching and organising power, and came to London to aid in the transplantation and re-making of St. Paul's School. He was a first-class classical scholar and a good mathematician, believed in plenty of work, and knew how to get it out of both masters and boys. He published nothing, but encouraged those about him to become authorities in various lines of scholarship. He made no effort to be in the public eye, and it seems probable that two or three headmasters of his time learnt this useful lesson of reserve from him. But he enjoyed life widely and deeply. His achievement is that he showed what can be done in the way of developing great public day schools in populous centres.

ONLOOKER.

*A Text-book of Botany.* By J. M. Lowson. Fifth edition, revised and enlarged. viii+607 pp. (Clive.) 6s. 6d.—No change has been made in the general plan of this book. Some of the chapters, however, more especially those dealing with the seed, the natural orders, and the theory of evolution, have been expanded. More attention, too, has been paid to biological detail.

THE MORE RECENT DEVELOPMENTS OF EDUCATION.<sup>1</sup>

PERHAPS no more striking example of the extent to which the older conception of the term education has become widened in its scope within quite recent years can be found than that which is supplied by the significant fact that the whole of the report of the chief medical officer of the Board of Education for last year is concerned solely with the hygienic and physical aspects of educational work. The Act of 1907 entailed upon local education authorities and their officers throughout England and Wales an immense amount of practically new work in a direction along which only a few tentative and limited experiments had previously been undertaken. To this end new administrative machinery had to be devised, and, so far as might be, dovetailed with existing administrative arrangements. At the same time, every care had to be taken that these new functions should be exercised in a fashion which should be practical in method and productive of practical results, without entailing more than a minimum expenditure.

Though such conditions obviously presented difficulties by no means inconsiderable, the country is to be congratulated upon the excellent results which have been achieved within the short period under review, and upon the whole-hearted and self-sacrificing labour which can alone have made this possible. It is but natural that, as yet, minor variations of the manner in which the work is carried out should obtain among the different local authorities, variations in detail as well as, to some extent, in scope—this is what might be expected amongst authorities concerned with local needs and conditions which differ in their character and relative importance in different cases, while seeking, each in its own way, for solution of problems which confront them. A certain elasticity in limitation of each individual is essential, if their joint labour is ultimately to approximate to the ideal common to them all. For 1909 "the only conspicuous exception" to a loyal conformity with the requirements laid by the code upon local education authorities "is furnished by the London County Council." But even this recalcitrant body has repented, and has lately intimated its intention of complying with the code of regulations for public elementary schools in respect of the year 1911.

It is satisfactory to note that the merging of the School Medical Service with the Public Health Service has been carried out in numerous cases, without difficulty and with good results. This co-ordination is now in practice to so large an extent that Dr. Newsholme believes that "the necessary administrative machinery appears now to be available for a more or less complete co-ordination of the School Medical Service with the Public Health organisation": which may bring us a step nearer to a Public Medical Service under the supervision of a recognised Minister of Public Health.

In addition to fulfilling the requirements laid upon them by the regulations embodied in the code, a very considerable number of school medical officers have furnished papers or reports upon special subjects which they have taken up for investigation. All these are directly associated with one or more of the various problems which confront the worker in school hygiene, and each is a valuable contribution to the fuller mastery of this many-sided subject: this voluntary work is, of course, additional to the annual reports which are required to be furnished by the medical officer of every education authority.

These reports do not yet appear in such a form as would furnish absolutely comparable scientific data for the country as a whole in a tabular form. This is due to several causes—especially to the diversity of administration which is natural to the earlier stages of the organisation of a movement so great and far-reaching as the establishment of a national scheme of school hygiene; to variations in the methods adopted in the collection of facts and findings; and also to the lack of precision and finality in the medical knowledge of some of the maladies of school children, which makes it, as yet, premature or undesirable to attempt to classify data furnished from many areas, by many different workers, and ascertained on a variety of standards of evidence. But these reports each and all represent a very large amount of practical work, and furnish valuable and not less practical results. From time to time one meets with an observation which proves beyond question the incidentally educative value of such a measure as, for instance, that of medical inspection, and shows, quite apart from the mere statistical information which the medical inspection of school children may furnish, and the indications for the treatment and prevention of disease which may be founded on it, that its promoters "builded better than they knew." Thus, the desire of parents to ensure the personal cleanliness of their children has undoubtedly been stimulated by the conditions revealed in the course of medical inspection and by the measures urged upon the mothers in consequence. Not only is it becoming common to find the heads of the children cleaner on the second school inspection than at the time of the first; but corroborative evidence of these awakened consciences is given by the medical superintendent of the Sheffield City Fever Hospitals, who reports that the percentage of clean heads amongst the children admitted had risen from 29·7 per cent. in 1907 to 40 per cent. in 1908, and adds, "Surely this happy result is due to the medical inspection of school children."

Not the least difficult of the many duties included in the work of the school medical officers has been the devising of some administrative scheme by which the medical inspection of children and the impressing upon parents of the importance of their co-operation in the measures of treatment too often thus shown to be necessary, may be carried out in accordance with the requirements laid down by the code, to the best

<sup>1</sup> Annual Report for 1909 of the Chief Medical Officer of the Board of Education. (Wyman.) 11d.

advantage of the child, without hurting the susceptibilities or rousing the hostility of the parents, and with the minimal cost to the rate-payers. This duty, calling for the exercise of no small amount of skill, ability and tact, appears to have been discharged on the whole with singular success. The presence of the mother at the medical inspection of her child has generally afforded the opportunity of explaining to her the necessity for such treatment as is required in each case, and of enlisting her sympathy and personal support in having it carried out.

But in many cases the all-important question of securing efficient treatment for the more serious and less tractable conditions revealed by medical inspection resolves itself, in practice, into the choice between utilising the professional services of local hospitals (so far as these can render it) or of local practitioners, or by means of the establishment of school clinics. The matter is treated at some length; and it would appear that, in large centres of population at all events, the school clinic, in some form and for certain maladies, is the only effective—as it is, probably, intrinsically the best—method.

The later pages of the report review the progress which has been made of late in the physical training of the child at school; and half a dozen appendices furnish details which will be of interest to the mere ratepayer as well as to the educationist and the sanitarian.

In only one respect can the report be said to be disappointing. The ordinary person is apt sometimes to feel doubtful as to whether corporations, boards, and companies are, individually, singular or plural in number. The Board of Education (*facile princeps* among such bodies on such a question) has hitherto been in the habit of always referring to itself as though multitudinous. But when we find one of its chief officials, in a sentence at the close of his introduction, writing that “almost every local education authority in the country now appreciates the ends at which the Board is aiming and understands the means by which the Board consider . . .” authority seems to be crumbling before our eyes. Possibly, however, this suggestion of a sort of dual personality is to be regarded less as an example of simple inconsistency than as a delicate intimation that the Board claims for itself a share of that tolerant elasticity in the application of suggested rules which it has frequently proclaimed, in connection with other details of education, to be preferable to any rigid adherence to cast-iron regulations.

We direct special attention to the following extracts from the report:

#### REQUIREMENTS OF THE CODE.

The Act of 1907 itself laid down that it was the duty of each local education authority to provide for the medical inspection of children (a) immediately before, or (b) at the time of, or (c) as soon as possible after, their admission to a public elementary school, and on such other occasions as the Board of Education direct. The examination of all children, of whatever age, on their first entrance to

school was, therefore, an essential condition of the scope of the work; to that group of entrants the Board determined, in 1907, to add one other group, which for various administrative and practical reasons they considered should be, as far as practicable, at the opposite end of school life, that is, should include the older children. The code for 1909-10 accordingly required . . . that the Board must be satisfied that provision had been made in each school for the medical inspection of all children admitted since August 1st, 1909, and of all children who were *expected to leave school* before July 31st, 1910. Both “entrants” and “leavers” are terms, therefore, which cover somewhat indefinite age periods, the entrants being from, say, three to six years of age, and the leavers from, say, twelve to fourteen years of age. The size of this group of “leavers” varies with the practice of the local education authorities, some of whom fixed the age at from twelve to fourteen, while others fixed it at from thirteen to fourteen years of age. The estimates which were received by the Board as to the number of children each authority was prepared to inspect varied within comparatively narrow limits, and generally approximated to about one quarter of the average attendance, as the following table shows:

|   | Average attendance, 1908-9, (including H.E. schools) | One-fourth of average attendance | Estimated no. of children to be medically inspected |
|---|--|----------------------------------|---|
| <b>England:</b>                           |  |                                  |   |
| Counties . . . . .                        | 2,581,554  | 645,388                          | 647,000   |
| County Boroughs . . . . .                 | 1,523,965  | 380,991                          | 382,000   |
| Non-County Boroughs . . . . .             | 554,938  | 138,734                          | 159,000   |
| Urban Districts . . . . .                 | 302,073  | 75,518                           | 99,000  |
| <b>Total, England . . . . .</b>           | <b>4,962,530</b>                                     | <b>1,240,631</b>                 | <b>1,287,000</b>                                    |
| <b>Wales:</b>                             |  |                                  |   |
| Counties . . . . .                        | 227,594  | 56,848                           | 57,000  |
| County Boroughs . . . . .                 | 74,559   | 18,639                           | 27,000  |
| Non-County Boroughs . . . . .             | 9,230  | 2,307                            | 3,000   |
| Urban Districts . . . . .                 | 70,680   | 17,670                           | 23,000  |
| <b>Total, Wales . . . . .</b>             | <b>381,863</b>                                       | <b>95,464</b>                    | <b>110,000</b>                                      |
| <b>Total, England and Wales . . . . .</b> | <b>5,344,393</b>                                     | <b>1,336,095</b>                 | <b>1,397,000</b>                                    |

Local education authorities, of course, expect that sooner or later the inspection of a third age group intermediate to the “entrants” and “leavers” will be required by the code, and when that event occurs the “leaver” group will naturally become of less direct importance as an index of the physical condition of school children. It must not, however, be supposed, as some authorities have been led to assume, that the “leaver” group is unimportant merely because many of the children leave school before their physical defect is remedied. The “leaver” group is, in fact, of the greatest importance for various reasons, some of which are of an administrative character. Moreover, there are practical issues arising out of the inspection of this age group. First, it is the only group—a sort of index or test group—in which is manifested the final results of the practice or neglect of hygiene during school life; and, secondly, it is the group which brings medical inspection into direct relation with questions of employment and the after-career of the child. In Germany abundant use is made of this fact, to the great advantage both of the child and the State.

Most authorities also included among the number to be examined those children of any age found at the time of inspection to be ailing or defective from one cause or another; that is to say, they recognised that it was reasonable when the school doctor visited a school for purposes of medical inspection that there should be submitted

to him for advice, not only all the "entrants" and all the "leavers," but also any children especially needing medical examination at the time of his visit. Thus to the total number of entrants and leavers included in the above table there must be added an indefinite but substantial group of "specials," whose inspection was not required by the code. It is probably an underestimate to place the number of "specials" at 250,000. The institution of medical inspection has therefore meant that the local education authorities have had to provide for the examination of not less than 1½ million children. When medical inspection is in full working, i.e., when three age groups of children are being inspected, it is estimated that not less than one-third of all the children attending public elementary schools will be inspected per annum.

It should be added that in 1909 approximately 100 local education authorities carried out the medical inspection of three age groups of children, entrants, leavers, and an intermediate group. Thus they were able to accomplish, to the great advantage of their respective areas, a good deal more work than the code requires.

It seems almost an essential requirement that there should be attached to each school a few men and women, their number depending upon the size of the school and the social status of the children attending, who will undertake to follow closely the work of medical inspection and be prepared, upon the report of the school medical officer, the school nurse, the teacher or the school attendance officer, as the case may be, to visit in the home of any child where indifference, ignorance, or poverty on the part of the parent prevents appropriate action being taken to insure the remedy of a given defect or the cure of disease. As suggested, a likely nucleus for such an organisation will not infrequently be found already to exist. Thus in towns where there is established an active branch of the Invalid Children's Aid Association, or a Cinderella Club or similar organisation for attending to the welfare of the children, such a society may be willing to extend its operations in the direction of adopting the school as its unit of activity. Or, again, in other towns organisations are at work which take districts of the town as their units. This is the case in greater or less degree with some of the branches of the Charity Organisation Society, while the newer organisation, the Guild of Help, established in many towns and districts throughout the country, operates through small districts, to each of which is attached a district head and a number of voluntary helpers. A Children's Care Committee could hardly be established independently of an organisation of this character (where it exists) without waste of effort and danger of overlapping, and no doubt such a guild would find but little difficulty in adapting itself to meet the particular requirements of the school child.

A Children's Care Committee, then, however formed, should be so organised as to meet the various requirements of the child, and itself form part of a larger organisation concerning itself with the family as a whole, the adult as well as the child. If this be impracticable, its work should at least be carefully co-ordinated with that of any other societies having similar aims. It is perhaps of especial importance, more particularly in the case of the larger centres of population, that the different forms of voluntary activity associated with the work of the municipality or of the poor law should be intimately associated together. The need for this co-operation is more especially apparent between the Education Committee and the Public Health Committee, and between the Children's Care Committee

and the work of the voluntary helper of the Infant Care Associations, Schools for Mothers, and other agencies concerned in the health and welfare of children below school age.

## THE MOST NOTABLE SCHOOL BOOKS OF 1910.

THE short lists of recent school books which it has been customary to publish in the first number of each new volume of THE SCHOOL WORLD have proved very useful to teachers anxious to know the best available text-books in the subjects they teach, and we are glad to be able to continue the practice. The compilation of the following lists of books published during 1910, or too late in 1909 for inclusion in the lists prepared for our issue of last January, has been entrusted to experienced teachers familiar with the needs of schools. The compilers have had a free hand, and attention has not been confined to books reviewed in these columns.

Where the character of the volumes is not indicated sufficiently by the titles, a few explanatory notes have been added.

### Modern Languages.

Wilhelm Münch, "Didaktik und Methodik des französischen Unterrichts." (München: Beck.) 4 marks.

The third edition, revised, of this excellent book, which should be in every teacher's library.

H. Bornecque et B. Röttgers, "Recueil de Morceaux Choisis d'Auteurs Français." (Lockwood.) 5s. 6d. net.

The second, much enlarged, edition of this excellent selection, which ranges from Ronsard to René Bazin.

"The Romantic Movement in French Literature. Traced in a Series of Texts." Selected and edited by H. F. Stewart and Arthur Tilley. (Cambridge University Press.) 4s. net.

F. Brunot, "Histoire de la langue française des origines à 1900." Tome 3. "La formation de la langue classique (1600-1660)." (Paris: Colin.) 12.50 francs.

Gustave Lanson, "L'Art de la Prose." (Paris.) 3.50 francs.

The teacher of French will read this book with interest and profit.

Joseph Duhamel, "Tony et sa Sœur en France. Récit de voyage, avec notes et appendices sur les gens et les choses." (Dent.) 2s. 6d.

An interesting and trustworthy book on French life and ways.

"Chez les Français." Edited by H. Carter. With Exercises by Miss C. F. Shearson. (Black.) 2s.

An advanced reader of exceptional merit.

H. Driault et H. Sée, "Histoire de la nation et de la civilisation françaises." (Paris: Picard.) 1.50 francs.

A nicely illustrated book, which might find a place in the form library, and could be utilised for conversational practice.

"Lectures et Exercices. Cours Élémentaire." By F. B. Kirkman, L. Chouville, and Miss A. P. Pechey. Edited by M. P. Andrews. "Cours Moyen." By M. P. Andrews. (Black.) 2s. each.

"Poèmes pour l'Enfance." Recueillis et annotés par Marcel Braunschvig et Mme Marcel Braunschvig. (Paris: Didier.) 2.80 francs.

A very good collection of simple poems. Difficulties are explained in French at the foot of the page.



C. Thomas, "An Anthology of German Literature." (Heath.) 6s. net.

A valuable selection, with good renderings of extracts from medieval German, but not including the nineteenth century.

Gustav Hein, "Auswahl deutscher Prosa der Gegenwart." (Oxford University Press.) 3s. 6d.

A good selection of twenty stories by as many authors, with explanations in German.

W. Rippmann, "Easy Free Composition in German." (Dent.) 1s. 4d.

The teaching of free composition is one of the most important means of ensuring ease in handling a foreign language. This little book contains valuable suggestions.

### Classics.

For the serious student, the following books are to be recommended:

"A Companion to Latin Studies." Edited by Dr. J. E. Sandys. (Cambridge University Press.) 18s. net.

This is even more useful than the Greek Companion, for it contains a great deal of matter that the student would hardly be able to find elsewhere.

"The Bacchants of Euripides, and other Essays." By Dr. A. W. Verrall. (Cambridge University Press.) 10s. net.

"Homer and the Iliad." By F. M. Stawell. (Dent.) 6s. 6d.

Demolishes the linguistic arguments against one Homer.

"The World of Homer." By Andrew Lang. (Longmans.) 6s. 6d. net.

Deals with the archaeological and literary evidence.

"The Acharnians of Aristophanes." With a verse translation by B. B. Rogers. (Bell.) 10s. net.

"Dionysius of Halicarnassus on Literary Composition." By W. R. Roberts. (Macmillan.) 10s. net.

### For the School.

"The Syntax of High School Latin." By L. Byrne. (University of Chicago Press.) 3s. net.

A companion to Lodge's Vocabulary.

"Roman Life Reader." By S. E. Winbolt and F. H. Merk. (Constable.) 2s. 6d. net.

For fifth form.

"Selections from the Latin Literature of the Early Empire." By A. C. B. Brown. Two parts. (Clarendon Press.) 4s. 6d.

"Clari Romani." Simplified text. Separate parts. Julius Caesar; Agricola; Marius and Metellus, the Jugurthine War. (Murray.) 1s. 6d. each.

"Select Letters of Seneca." By W. C. Summers. (Macmillan.) 5s.

With a good introduction on Silver Latin.

"The Plays of Aeschylus in English Prose." By W. Headlam. (Bell.) 3s. 6d.

### English Language, Grammar, and Composition.

"An Etymological Dictionary of the English Language." By W. W. Skeat. (Oxford University Press.) 21s. net.

This new edition, revised throughout, is indispensable for the school library.

"A Modern Dictionary of the English Language." (Macmillan.) 1s. 4d.

Thoroughly up-to-date and trustworthy.

"A New Shakespearean Dictionary." By R. J. Cunliffe. (Blackie.) 9s. net.

Invaluable for the study of Elizabethan English, as well as for Shakespeare.

"The Elements of English Versification." By J. W. Bright and R. D. Miller. (Ginn.) 4s.

A scholarly introduction to verse technique.

"Grammar and its Reasons." By M. H. Leonard. (Pitman.) 3s. 6d. net.

An interesting American book. For the teacher rather than the pupil.

"English Exercises." By J. L. Robertson. (Blackwood.) 1s.

A varied selection of passages, with suitable exercises upon them, for both juniors and seniors.

"An English Course for Evening Students." By F. J. Adkins. (Swan Sonnenschein.) 3s. 6d.

Should be valuable for evening schools.

"Dictation Exercises from Standard Authors." By R. Wenlock. (Macmillan.) 2s. 6d.

A very serviceable manual of "prepared" dictation.

"English Composition." By W. Murison. (Cambridge University Press.) 3s. 6d. net.

The arrangement is a model of clearness. Any class that studies this scholarly book systematically will receive a splendid training in literary expression.

"Graduated Exercises in English Composition." By H. Bendall. (Blackie.) 1s. net.

To meet the Board of Education's circular on the teaching of English.

"A Preparatory Course of Literary Reading and Composition." By L. Marsh. (Blackie.) 1s. 6d.

Very useful; beautifully illustrated.

### History.

#### For the Teacher.

"The Cambridge Modern History." Vol. xii. By Various Writers. (Cambridge University Press.) 16s. net.

Completing, save for two supplementary volumes, this great standard history, planned by the late Lord Acton.

"Town Study." By M. M. Penstone. (National Society's Depository.) 4s. net.

Advocating and illustrating the study of towns parallel to that of "nature."

"Studies in the Teaching of History." By M. W. Keatinge. (Black.) 4s. 6d. net.

A handbook for the direction of teachers.

"History of England, 1547-1603." By A. F. Pollard. (Longmans.) 7s. 6d. net.

Completing Longman's Political History of England in Twelve Volumes, a standard work.

"Edward IV." By L. Stratford. (Pitman.) 3s. 6d. net.

A monograph on a generally somewhat neglected period.

"Sir Henry Vane." By F. J. C. Hearnshaw. (Congregational Union.) 6d. net.

An excellent example of studies undertaken for denominational purposes, but treated in the true historical manner.

"A History of England." By J. Oliphant. (Dent.) 3s. 6d.

A novel treatment of an old subject.

#### For the School Library.

"Some Famous Women." By L. Creighton. (Longmans.) 1s. 6d.

Good reading for both boys and girls.

"In the New Forest" and "Lion Heart." By H. Strang. 1s. each.

Two of this author's good historical tales.

"A New School Atlas of Modern History." By R. Muir. (Philip.) 3s. net.



*Special Topics.*

"From Metternich to Bismarck." By L. C. Jane. (Clarendon Press.) 4s. 6d.

A text-book of European history, 1815-78.

"A History of India, Part I." By R. V. R. Aiyangar. (Longmans.) 1 rupee 4 annas.

A good account of early India.

"Heroes of Indian History." By J. C. Allen. (Longmans.) 12 annas.

Interesting alike to British and Indian children.

"Tales from Irish History." By A. Birkhead. (Methuen.) 1s. 6d.

A sketch of Irish history.

"Heroes of Wales." By W. J. Thomas. (Horace Marshall.) 1s. 4d.

A pleasant book on Welsh history.

"A Short History of Southampton." By F. J. C. Hearnshaw. (Clarendon Press.) 2s. net.

"The Story of Hampshire." By T. Varley. (Black.) 1s. 6d.

Two good examples of local history illustrating national history.

**Geography.***General.*

"Physical and Commercial Geography." By H. G. Gregory, A. G. Keller, and A. L. Bishop. (Ginn.) 12s. 6d.

A disquisition by three American professors on the interrelation of man and his environment.

"A Physiographical Introduction to Geography." By A. J. Herbertson. (Clarendon Press.) 1s. 6d.

A go-between to the author's Junior and Senior Geographies.

"General and Regional Geography for Students." By J. F. Unstead and E. G. R. Taylor. (Philip.) 6s.

Useful sketch maps and diagrams.

"The Senior Scientific Geography." By Ellis W. Heaton. (Ralph, Holland.) 5s.

A collection of Mr. Heaton's seven books into one cover.

"A Junior Course of Comparative Geography." By P. H. L'Estrange. (Philip.) 3s. 6d.

Course A of the "Progressive Course."

"The Scholar's Book of Travel": "British Isles," "Europe," "Other Lands," "British Empire." (Philip.) 1s. 3d. each.

Descriptive extracts from many writers.

"Man in Many Lands." By L. W. Lyde. (Black.) 2s. 6d.

An introduction to the study of geographic control.

"Questions on the Senior Geography." By F. M. Kirk. With "Statistical Appendix" by E. G. R. Taylor. (Clarendon Press.) 1s.

Particularly useful statistics.

"Key to Practical Exercises in Geography." By B. C. Wallis. (Macmillan.) 3s. 6d.

Supplying a natural want to those who possess the author's "Practical Exercises."

"The Teaching of Geography." By L. W. Lyde. (Blackie.) 1s.

A breezy, bracing epitome of good advice.

"Hints to Teachers and Students in the Choice of Geographical Books." By H. R. Mill. (Philip.) 5s.

The second edition revised by Dr. Herbertson and others.

*Special.*

"Central and South America." Vol. i. By A. H. Keane. (Stanford.) 15s.

The second edition of "South America" in the "Compendium" series. A first-class book of reference.

"Distant Lands." By H. J. Mackinder. (Philip.) 2s. The third volume of "Geographical Studies"; the "Lands" are those outside of Europe.

"British Isles," "Asia." By F. D. Herbertson. (Clarendon Press.) 1s. 9d. and 1s. 6d. respectively.

Vols. iv. and vii. of Mrs. Herbertson's "Elementary Geography," dealing with the broad facts of geography.

"Great Britain and Ireland." By J. B. Reynolds. (Black.) 1s. 4d.

One of the "Elementary Regional" series; designed especially for Irish schools.

"Cambridge County Geographies": "Cambridge," by T. McK. Hughes and Mary C. Hughes; "Cheshire," by T. A. Coward; "Gloucester," by H. A. Evans; "Cornwall," by S. Baring Gould; "Dorset," by A. L. Salmon; "Derbyshire," by H. H. Arnold-Bemrose; "Cumberland," by J. E. Marr; "Nottinghamshire," by H. H. Swinnerton; "Lanarkshire," by F. Mort. (Cambridge University Press.) 1s. 6d. each.

The continuation of an excellent series.

*Atlases.*

"New School Atlas of Comparative Geography." (Philip.) 2s. 6d.

A development of the well-known series of "Comparative" wall-maps.

"School Economic Atlas." By J. G. Bartholomew. (Clarendon Press.) 2s. 6d.

Introduction by Prof. Lyde. Another edition is published at 3s. 6d. for other than school use.

*Wall Maps.*

"North America," "British Isles." Physical features. (Clarendon Press.) 8s. 6d. each.

The Oxford series edited by Dr. Herbertson.

"United States." Orographical. (Philip.) 14s.

One of the "Comparative" series.

"British Isles." Orographical. (Stanford.) 16s. and 20s.

Mackinder's series with the grey lettering.

"Basin of the Thames." Orographical. (W. and A. K. Johnston.) 12s.

Scale, 3 miles to the inch. A most effective map.

**Mathematics.**

"Public School Arithmetic." By W. M. Baker and A. A. Bourne. (Bell.) 4s. 6d.

A comprehensive text-book on modern lines. The examples are carefully selected and arranged, and are thoroughly representative of the most recent types.

"The Student's Arithmetic." By W. M. Baker and A. A. Bourne. (Bell.) 2s. 6d.

A shortened edition of the above work, the examples in the two books being identical.

"A School Algebra." By H. S. Hall. (Macmillan.) 2s. 6d.

Contains all that is essential in a course of elementary algebra up to and including the solution of simultaneous quadratic equations.

"A Geometry for Schools." By F. W. Sanderson and G. W. Brewster. (Cambridge University Press.) 3s.

Plane geometry as far as the theory of similarity treated by inductive and deductive methods.

"In the Open Air." By J. Eaton Feasey. (Pitman.) 1s. 6d.

A series of outdoor lessons in arithmetic, mensuration, geometry, &c., for primary and secondary schools.

"A Class Book of Trigonometry." By Charles Davison. (Cambridge University Press.) 3s.

A first course of trigonometry, including the solution of triangles. Contains a large number of examples to be taken orally.

"Plane Geometry for Advanced Students." Part II. By Clement V. Durell. (Macmillan.) 7s. 6d. net.

Contains the theory of the conic sections treated by the methods of projection.

"Conic Sections." By Charles Smith. (Macmillan.) 7s. 6d.

A revised and enlarged edition of this well-known textbook of co-ordinate geometry.

"Co-ordinate Geometry of Three Dimensions." By R. J. T. Bell. (Macmillan.) 10s. net.

A fairly complete account of the properties of the plane and conicoids, together with an introduction to the theory of surfaces and curves in space.

"The Calculus for Beginners." By J. W. Mercer. (Cambridge University Press.) 6s.

Intended primarily for those who are or will be interested in the applications of the calculus to physics and engineering.

"The Elements of Hydrostatics." By C. M. Jessop and G. W. Caunt. (Bell.) 2s. 6d.

Contains all those parts of hydrostatics which can be treated without the calculus.

"Dynamics of a Particle and of Rigid Bodies." By S. L. Loney. (Cambridge University Press.) 12s.

"Practical Mathematics and Geometry for Technical Students." By E. L. Bates and F. Charlesworth. (Batsford.) 3s. net.

Contains the practical mathematics required by artisan students who wish to proceed to the advanced stages of any science or technical subjects.

### Chemistry and Physics.

#### CHEMISTRY.

"Elements of Organic Chemistry." By E. I. Lewis. (University Tutorial Press.) 2s. 6d.

Written with lucidity and knowledge.

"Introduction to General Chemistry." By J. T. Stoddart. (Macmillan.) 7s. net.

"A First Year's Course of Inorganic Chemistry." By G. F. Hood. (Rivingtons.) 1s. 6d.

"A Manual of Elementary Practical Chemistry for Use in the Laboratory." By P. W. OsCroft and R. P. Shea. (Rivingtons.) 2s.

"Elementary Modern Chemistry." By Wilhelm Ostwald and H. W. Morse. (Ginn.) 4s. 6d.

Teachers should get this book.

"Practical Chemistry." By J. Bruce and H. Harper. (Macmillan.) 2s. 6d.

Analytical work is preceded by a number of typical inorganic preparations.

#### PHYSICS.

"Ganot's Elementary Treatise on Physics." Eighteenth edition. Edited by A. W. Reinold. (Longmans.) 15s.

A thoroughly revised up-to-date edition of "Ganot."

"A Practical Course in First Year Physics." By E. T. Bucknell. (Mills and Boon.) 1s.

"Wonders of Physical Science." By E. E. Fournier. (Macmillan.) 1s. 6d.

One of the series of "Readable Books in Natural Knowledge." The subject is treated historically, and the book is recommended as presenting the humanistic aspect of physical science.

"New Matriculation Sound." By R. W. Stewart. (University Tutorial Press.) 3s.

"Matriculation Magnetism and Electricity." By R. H. Jude and J. Satterly. (University Tutorial Press.) 4s. 6d.

"A First Book of Physics." By L. Lownds. (Macmillan.) 1s. 6d.

Measurement, mechanics, and heat—for beginners.

"Electrotechnics." By J. Henderson. (Longmans.) 3s. 6d.

A descriptive course of laboratory experiments intended for junior engineering students; some of the work could well be introduced into the practical physics class for senior boys.

### Natural History.

#### BOTANY.

"Ancient Plants." By Marie C. Stopes. (Blackie.) 4s. 6d. net.

An excellent introduction to palaeobotany.

"The Teaching Botanist." By W. F. Ganong. (New York: The Macmillan Company.) 5s. net.

The second and revised edition. Invaluable to teachers.

"In the Garden." By J. E. Feasey. (Pitman.) 2s. Lessons, mainly on plant life, to be given in the school garden.

"A Primer of School Gardening." By Madeline Agar. (Phillip.) 2s. net.

"Observation Lessons in Botany." By C. G. Kiddell. (Pitman.) 3s.

#### ZOOLOGY.

"Observation Lessons in Animal Life." By F. H. Shoosmith. (Charles and Dible.) 3s. 6d.

"The Building and Care of the Body." By C. N. Millard. (New York: The Macmillan Company.) 2s. 6d.

An elementary text-book of practical physiology and hygiene.

"Preliminary Physiology." By W. Narramore. (Methuen.) 3s. 6d.

Contains good photomicrographs of the tissues.

#### GENERAL BIOLOGY.

"The Aims and Methods of Nature Study." By J. Rennie. (Clive.) 3s. 6d.

A valuable practical guide for teachers.

"How to Teach Nature Study." By T. W. Hoare. (Sidgwick and Jackson.) 3s. 6d. net.

"Teachers' Notes on Nature Study: Plants and Animals." (Blackie.) 1s. 6d. net.

"Threads in the Web of Life." By Margaret R. Thomson and J. A. Thomson. (Macmillan.) 1s. 6d.

A fascinating school reader on the interrelations among animals.

"Tillers of the Ground." By Marion I. Newbigin. (Macmillan.) 1s. 6d.

An equally admirable reader dealing with the origin and development of agriculture.

### OCEAN CURRENTS—THEIR RELATION TO ONE ANOTHER.<sup>1</sup>

By W. J. HUMPHREYS.

IMPORTANCE.—Just as a boat can travel faster down stream than up, so too a vessel at sea can travel faster with an ocean current than against it. With it the distance travelled, as determined by dead reckoning, uniformly is less, and against it greater, than that found by astronomical observations, and the difference is a measure of the current's velocity in the direction of travel.

Obviously, then, such currents are of great importance to ocean commerce, both because of their influence on the speed of travel and because of the errors they sometimes

<sup>1</sup> From the Meteorological Chart of the North Pacific Ocean, January, 1911, of the U. S. Weather Bureau.

introduce into position determinations, and for these reasons, among others, they deserve careful study.

They are also of meteorological importance in that they aid in fixing the positions of semi-permanent "highs" and "lows," and modify the temperature and rainfall of countries to their immediate leeward.

**INTERDEPENDENCE.**—In considering ocean currents, whether *drift* (broad, shallow, and leeward) or *stream* (narrow, deep, and swift), one must keep clearly in mind the fact that the water, even of the ocean, is limited in amount, and that everywhere it tends to form an equipotential surface. A continuous current, therefore, implies corresponding currents elsewhere, both in front and behind, that together constitute a complete circulation. Further, it must be remembered that while the oceans are all connected, the passage from one to the other, except along latitudes from  $40^{\circ}$  to  $60^{\circ}$  south, where a cold circumpolar drift current is found, is mainly among island disturbances and around continental barriers; so that with this one exception, the common interchange and mixing current of all, free circulation around the earth is impossible. In brief, whatever the motive power may be or wherever situated, each current implies others that together with it form a closed system which, whether simple or tortuous, is approximately confined by land barriers to a single ocean.

**PRINCIPAL CAUSE.**—Since the voyage of the *Challenger*, 1873-6, and the critical analyses by Zöppritz (*Annalen der Physik und Chemie*, 1878-9), it has been definitely known that uniformly directed winds, like the trades, constitute the principal cause of all ocean currents.

The viscosity, or internal friction, of air and of water together with the friction between the two, which becomes more pronounced the rougher the surface, cause a continuous current in either medium, when there is no counter-acting influence, gradually to establish a current in the same direction in the other.

These frictions are all so slight that the transfer of motion from one medium to a considerable depth in the other is very gradual, and for the same reason the dying out of a current once established is correspondingly slow. Hence shallow surface currents, resulting from a long-continued storm, are often found the *set* (point of compass toward which they flow) and *drift* (distance gone per hour) of which differ radically from those of a deeper and more permanent current.

As to the prevailing winds themselves, since they are not directly under consideration, it will suffice to say that they are caused mainly by latitude differences in temperature, together with the rotation of the earth.

**SECONDARY CAUSES.**—*Rotation of the Earth.*—This causes a body of water moving polewards, or to smaller parallels, to have an eastward component, and, conversely, a body moving equatorwards to have a westerly component. Besides, it produces everywhere a gyroscopic action that gives to a unit mass, in whatever horizontal direction it is moving, an accelerative force at right angles to the path of flow that is proportional to the product of its actual velocity multiplied by the sine of the latitude. In the Northern Hemisphere this force produces a deflection from left to right, in the Southern Hemisphere from right to left.

In the above only the direct action of the rotation of the earth on the currents themselves is considered, not its indirect action through its effect on the winds.

*Tides.*—The tides produce no perceptible flow on the open seas. It is only near the land, and especially through narrow channels and in small bays, that tidal currents, whether ebb or flow, are of any importance.

**Polar Ice.**—Any change in the extent and boundary of ice caps necessarily modifies the obstructions to local currents and varies the area of water on which the winds can act.

Modifications due to this cause, presumably, are most pronounced in the Southern Hemisphere, where, through the circumpolar drift, several currents may be indirectly affected, though to what extent such changes actually occur does not appear to be known.

**Evaporation and Precipitation.**—Evaporation causes a slight inward and precipitation an outward readjusting flow, in spite of the fact that the average salinity, and consequent density, is somewhat increased in the first case and lowered in the second. But a little calculation will show that any such flow must be negligibly small in comparison with the great ocean currents. However, evaporation and precipitation, together with the contribution from rivers, constitute the principal cause of the comparatively feeble permanent and semi-permanent currents found on inland seas and in the straits that connect them with each other or with the ocean.

**Temperature Inequalities.**—For any temperature above that peculiar to its maximum density, water expands with increase of temperature and contracts with decrease. Hence there is a tendency for the hills of warm expanded water, in spite of their decreased density, to run down into and fill up the hollows of cold contracted water. But even this slight effect is more or less offset by the excess of evaporation from the warmer places and precipitation over the colder, so that the combined result may be regarded as wholly negligible.

**Differences in Atmospheric Pressure.**—A difference between the atmospheric pressures over two portions of the same body of water necessarily produces a flow from the places of higher to those of lower pressure. Such pressure distributions are too fleeting to allow a complete readjustment of levels, but the tendency is to make the difference of level between two places equal to the difference between their respective barometric readings multiplied by the density of mercury in terms of the water concerned.

In restricted bodies of water a disturbance of this nature, known under these conditions as *seiche*, may be of some importance, but on the ocean it is always imperceptible.

**PRINCIPAL CURRENTS OF THE NORTH ATLANTIC OCEAN.**—

**Guinea Current.**—This current of warm water flows east between the equator and the coast of Guinea with a velocity at places of 20 to 30 miles a day. It appears to be a counter or eddy flow caused by the adjacent South Equatorial Current.

**North Equatorial Current.**—This is a warm-water current, lying mainly between the equator and the Tropic of Cancer, that is driven by the trade winds west across the Atlantic Ocean from Africa and then north-west off the coast of South America. Its velocity appears to be from 15 to 25 miles a day. A portion of this current passes north of the Antilles and merges with the Gulf Stream at about latitude  $30^{\circ}$  north. The main portion, however, threads the passages of the Lesser Antilles into the Caribbean Sea, and flows around the western end of Cuba, where it turns due east.

**Florida Current.**—After rounding Cuba the current from the Caribbean Sea flows east for some distance along the north coast of Cuba, where it is called the Florida Stream.

**Gulf Stream.**—This, the most important and one of the swiftest of ocean currents, is a continuation of the Florida Current which turns north between Florida and the Bahamas, and then, under the name of the Gulf Stream,

moves north-east off the east coast of the United States. It consists of warm water the temperature of which drops off most rapidly on the side next the land.

Off the coast of New England it turns due east, in the general direction of the prevalent winds, and flows on north of the Sargasso Sea with but little change until about half-way across the Atlantic Ocean.

**Gulf Stream Drift.**—At about longitude  $40^{\circ}$  west and latitude  $42^{\circ}$  north nearly the whole of the Gulf Stream fans out into a broad, slow current that covers the Atlantic Ocean from Spain to Iceland, and extends around Norway even to Spitsbergen and Nova Zembla. This portion is called the Gulf Stream Drift.

There is good reason to believe that the climates of England, Ireland, and all other countries the windward sides of which are bathed by this current are greatly tempered by its relatively warm, moisture-laden air.

**East Greenland Current.**—This is a cold current from the Arctic Ocean that flows south-west along the east coast of Greenland, rounds the southern end of this island, and turns north-west into Davis Strait.

**Labrador Current.**—The cold Labrador Current appears, in the main, to be only a continuation of the East Greenland Current. It flows south of the coasts of Labrador and Newfoundland. It seems mainly to disappear, at least as a surface current, at the northern edge of the Gulf Stream about where the latter begins to spread out, or, say, at longitude  $44^{\circ}$  west and latitude  $44^{\circ}$  north.

**Canary Current.**—This is a cold current for its latitude, flowing south and south-west between the Sargasso Sea and the west coast of Africa. It seems to be continuous with the southern part of the Gulf Stream and northern portion of the North Equatorial Current.

Probably, as a result of its relatively low temperature, it is the seat of a semi-permanent barometric high.

**PRINCIPAL CURRENTS OF THE SOUTH ATLANTIC OCEAN.**—**Antarctic Drift Current.**—This is a slow-moving current of cold water that crosses the Atlantic Ocean from west to east in the direction of the prevailing winds along the parallels between  $40^{\circ}$  and  $60^{\circ}$  south.

**Falkland Current.**—When the Antarctic Drift Current rounds Cape Horn some of it turns north between the Falkland Islands and the mainland, where, known as the Falkland Current, it extends feebly so far north as latitude  $40^{\circ}$ .

**Benguela Current.**—A considerable portion of the Antarctic Drift Current turns north off the west coast of southern Africa, where it is known as the Benguela Current.

The water of this current is cold for its latitude, and there remains over it a semi-permanent barometric high.

**South Equatorial Current.**—The water of the Benguela Current turns westward, under the influence of the trade winds, and crosses the Atlantic Ocean to South America, where it is divided by Cape St. Roque into a northern and a southern portion, the first merging with the North Equatorial Current and the second flowing along the south-east coast of Brazil.

**Brazil Current.**—This is the warm current, just referred to, that flows south-west off the coast of Brazil. It gradually turns east, where it appears to merge with the Antarctic Drift, and thus to be on its way to another round.

**PRINCIPAL CURRENTS OF THE NORTH PACIFIC OCEAN.**—**North Equatorial Current.**—This is a broad current of warm water flowing directly west, under the influence of the trade winds, with a velocity of 12 to 20 miles a day. It extends all the way from the Mexican and South

American coasts to the Philippine Islands, where it is deflected to the north.

**Equatorial Counter-current.**—Just north of the equator is found an irregular current of varying width that flows east, counter to and between the north and south equatorial currents. Its width is greatest near the American end, where it covers 300 miles or more, but it extends in a tapering wedge almost to the Philippines.

**Kuroshiwo, or Japan Current.**—A portion of the North Equatorial Current rounds the northern end of Luzon into the China Sea, but the main body of it, under the name of Kuroshiwo, or Japan Current, passes north between Formosa and the Riukiu Islands. A little of this current runs into the Sea of Japan, but much the greater part skirts the south-eastern coast of Japan as a narrow, swift current analogous to the Gulf Stream of the Atlantic Ocean.

Off the east coast of Japan, or, roughly, at latitude  $32^{\circ}$  north and longitude  $144^{\circ}$  east, this current spreads out and passes, mainly eastward, in the direction of the prevailing winds to the coast of North America, where some of it turns north along the Alaskan coast, but most of it south off the upper and lower California coasts.

**California Current.**—This is continuous with the southern portion of the Japan Current and the northern part of the North Equatorial Current. It flows south-east off the coast of California, then south and south-west until it gradually merges with the western drift, ready for another circuit.

The water of this current, because coming from the north, is cold for its latitude, and hence it is accompanied by a semi-permanent barometric high.

**Bering Sea Current.**—This is a cold current that flows south-west from the Bering Sea along Kamchatka and the Kurile Islands to the north-east coast of Japan, off which it turns eastward and merges with the east drift across the Pacific Ocean.

**PRINCIPAL CURRENTS OF THE SOUTH PACIFIC OCEAN.**—**Antarctic Drift Current.**—This current of cold water between latitudes  $40^{\circ}$  and  $60^{\circ}$  south flows, under the influence of the prevailing winds, nearly due east entirely across the Pacific Ocean.

**Peru Current.**—A considerable portion of the Antarctic Drift turns north off the coast of South America, where it is known as the Peru Current. It is, of course, cold for the latitudes it reaches, and therefore a semi-permanent barometric high is found off the west coast of South America.

**South Equatorial Current.**—This, a continuation of the Peru Current, crosses the Pacific Ocean westward in the direction of the trade winds from South America, where it is rather swift, to about longitude  $180^{\circ}$ , at which place, because of numerous island interferences, it has become very slow.

**East Australian Current.**—A portion of the South Equatorial Current that succeeds in threading its way among the Pacific Islands turns south along the south-east coast of Australia, where it is known as the East Australian Current. It soon turns east and merges with the Antarctic Drift Current.

**Currents of the China, Java, and other Inter-island Seas of the Pacific Ocean.**—In all the inter-island seas of the south-west Pacific Ocean the surface currents have, in the main, the direction of the prevailing monsoons, and therefore have substantially opposite seasonal directions.

**PRINCIPAL CURRENTS OF THE INDIAN OCEAN.**—**Antarctic Drift Current.**—This is a cold circumpolar current between

latitudes 40° and 60° south, and flows from west to east parallel to the prevailing winds of these latitudes.

*West Australian Current.*—A portion of the Antarctic Drift Current turns north off the west coast of Australia, and is known there as the West Australian Current. It is, of course, somewhat cool for the latitudes it reaches, and hence is accompanied by a semi-permanent barometric high.

*South Equatorial Current.*—Under the influence of the trade winds a south equatorial current flows from the west coast of Australia west, mainly to and around the northern end of Madagascar. A portion of it, however, turns south off the eastern coast of Madagascar, and after a time merges with the Antarctic Drift Current.

*Mozambique and Agulhas Currents.*—During northern winters nearly all, and during southern winters still a portion, of the south equatorial current that passes the northern end of Madagascar turns south near the African coast, which it follows as a warm current, first under the name Mozambique and then the Agulhas, quite to its southernmost point. After reaching the southern extremity of Africa it turns off south-west and merges with the Antarctic Drift Current.

*South-west Monsoon Current.*—This current flows only during the northern summer, when most of that portion of the South Equatorial Current that passes north of Madagascar turns north-west along the African coast under the influence of the south-west monsoons, and then east *via* Ceylon to Sumatra.

*North-east Monsoon Current.*—During the northern winters the monsoons are from the north-east, and during this time there is a surface current from northern Sumatra west *via* Ceylon to the west coast of Africa.

## HANDWORK IN RELATION TO SCIENCE TEACHING: THE MANIPULATIVE SKILL OF THE TEACHER.<sup>1</sup>

By G. H. WOOLLATT, Ph.D., F.I.C.

SCIENCE teaching in most schools is now dominated by the research idea, and it is therefore an essential that the lessons given and the experiments performed shall follow lines determined by the students themselves rather than a course definitely set out in a given syllabus beforehand.

One of the chief difficulties of a teacher in this respect is that of procuring suitable apparatus. Usually he is bound to apparatus which is catalogued by the various apparatus dealers, and his course of lessons is to some extent hung upon the pegs of purchasable apparatus units, instead of the apparatus being made to fit the experiments. In elementary schools this is even more the case than in secondary and technical schools, for the allowance for science apparatus is smaller, and the stock of it therefore still more limited. To stock a quantity of apparatus on the principle of a possible use being found for it is sheer extravagance, and as much apparatus deteriorates in value upon keeping, it is not a defensible policy. Yet, as already stated, one can scarcely tell for more than a week ahead what may be required.

A teacher of science in any school must possess the skill which will enable him to assemble standard units of apparatus in such a way as to make it possible to conduct almost any experiment, and the principle of supplying such standard units has been in vogue since science teaching

began; yet a glance around schools will usually show many quite elementary and more or less clumsy attempts at the setting up of simple apparatus. In other words, the science teacher rarely has found time to acquire the skill necessary to enable him to deal efficiently and neatly with the many and various materials that come under his notice. When he is able to command the services of an expert laboratory attendant his work is easier, but even then his possible experiments are bounded by the skill of his attendant and the apparatus shops. His work is thus frequently confined within limits which are unnecessarily and uneducationally small.

The remedy is to make all science teachers and all laboratory and lecture attendants pass through a course of instruction in the use of simple tools such as could be supplied to any laboratory, and in the various methods usually adopted in the manipulation of different materials used in the construction of apparatus. It is necessary also for a science teacher to know the properties of the various materials he uses and the limits to which he may strain and torture them; also his own capabilities in the direction of manipulation.

This remedy has been applied more or less during the past fifteen or twenty years in certain colleges, but in some cases the object has been defeated by supplying all the materials cut to size, so that only the erection of the apparatus to be constructed fell to the teacher-student. During the past five years, however, the Department of Agriculture and Technical Instruction in Ireland (which controls the science teaching in that country) has made it possible for its teachers to attend a systematic course of training such as that outlined above, and to attain, in the space of a few weeks, a training in the use of tools and materials sufficient to enable them to deal with most of the ordinary work which falls to the lot of the science teacher.

The course followed is roughly one of a hundred hours, of which less than twenty hours are spent in the lecture-room, the work in the lecture-room being mainly concerned with the reasons for the shapes of tools, the theory of their action, the manner of keeping them in working condition; the properties of materials, and the reasons for the use of various materials for specific purposes. The Department also includes in its lecture course instruction upon the construction and use of the projection-lantern, upon apparatus and diagram design, the care of tools, apparatus, benches, bottles, and other laboratory appliances, and similar subjects.

The practical work consists of four main divisions—work in wood, metal, and glass accounting for the first three, and a general section following, in which many of the ordinary processes of a physical laboratory are undertaken—processes which all teachers ought to be able to demonstrate, but which, unfortunately, are only possible with definiteness and certainty to few. This section includes such work as the copying in plaster or in copper of some small objects, the grinding and drilling of glass, the silvering of glass, cementing of various similar or dissimilar materials together, the cleaning of mercury, the preparation of microscope-slides, lantern-slides, the making of scales upon glass, &c., &c.

It is not the object of the course to turn out makers of apparatus, and for many purposes it is not necessary that the work done should have any high finish; it is mainly desired to impart the skill in the handling of materials such as will enable and encourage a teacher to set up his own apparatus in his own way for an experiment, and, further, to enable him to set out a correct

<sup>1</sup> Abstract of a communication to the Educational Science Section of the British Association at Sheffield, 1910.

specification for any instrument he requires which may be beyond his power to construct, for it is always made clear to students that much of the apparatus available for scientific work would not pay a teacher for the making; his time is more usefully employed in other directions.

Teachers in Ireland no longer are the only ones to enjoy the privilege of attending such a course, as during the past three years a similar one, of three weeks' duration, has been held in August at the Municipal Schools, Scarborough, under the auspices of the Educational Handwork Association, and any teacher in Great Britain now has the opportunity of becoming a skilled manipulator of apparatus and of material. It is encouraging to be able to report an annually increasing number of students in this subject.

A teacher who has been through such a course as this is no longer restricted in his apparatus. He is able to design or devise a new method of showing old facts; he is able to make a piece of apparatus simply and easily for the demonstration of any point requiring special attention, and he is able to overcome many of the greatest difficulties that beset a teacher of science—those of replacing small portions of broken apparatus, of readjusting faulty instruments, and of increasing the general efficiency and trustworthiness of the apparatus under his care.

In these circumstances the work of such a teacher becomes a more personal exposition than could otherwise be the case. The very kind of experiments performed and the type of apparatus chosen and used become an indication of the line of the teacher's thought. Each school laboratory will gradually acquire a tone from the influence of the man in charge, and so to some extent reproduce the results of the old days, when our great teachers—Black, Cavendish, Bunsen, and others—taught with home-made apparatus, much of which certainly indicated the personality of the maker. It was suggested that such a state of things is much more desirable than the present one of hundreds of laboratories containing the same units of apparatus, all used in the same way, with almost the same words in the explanations given.

Furthermore, the capability of making small apparatus and appliances encourages a teacher in the use of the projecting-lantern for delicate experiments—an immense educational advantage—and keeps him constantly on the look-out for new and pretty (therefore attractive and easily remembered) ways of performing his demonstrations.

## HISTORY AND CURRENT EVENTS.

Two general elections in one year! In some neighbourhoods there have been even three Parliamentary elections within that period. What, then, is the importance of Triennial Acts and Septennial Acts which we teach our pupils to learn, at least as to their occasion and meaning? We have heard a lecturer declaim against the Septennial Act as "illegal and unconstitutional." Whether he stopped to consider the definition of these terms we do not know. But, practically, for present-day purposes, does it matter? It is very evident that the eighteenth century has, for us Brito-Irish in our constitutional relations, passed into the region of mere antiquarianism. We are certainly in no danger of Houses of Commons existing beyond their allotted time. Even the shades of departed Chartists would not clamour now for "annual Parliaments," so quick are our statesmen to respond to the least variation of public opinion—at least as voiced in Fleet Street and its neighbourhood.

BUT why have some neighbourhoods suffered from *three* Parliamentary elections? Because, in the practical working of our "ancient" constitution, it is regarded as an indignity to a constituency to give to the member of its deliberate choice a definite share in the conduct of the Government he has been chosen to support and serve! So, at least, it would appear, for, having accepted a "place of profit under the Crown," he *ipso facto* vacates his seat in the House, and has the trouble and expense of a re-election, with the chances that his constituents may meanwhile have changed their minds. Thus is antiquarianism obtruding its "dead hand" into the living present. Because our forefathers, two hundred years ago, wishing to prevent a Hanoverian Sovereign from doing what French-minded Stuarts and a Dutch Sovereign had done, made an Act of Settlement with provisos, we have to suffer an absurdity, because as a people we are too conservative to abolish such things until they have become a perfect nuisance.

BUT why did we have a general election this last month? The alleged reason is that "the people of this country" may decide on the question raised as to the relations between the two Houses of Parliament. But is that the question which has decided each individual voter? Has everyone voted for the A or the B presenting himself as a candidate strictly accordingly as that candidate has (or has not) an originally conceived opinion on the question just stated? Or have other questions affected the issue in some cases? Financial questions, the political enfranchisement of women, to name but two matters of public interest, to say nothing of private preferences and opinions as to the opinions and character of the individual candidate, have, no doubt, affected the results. Once, it is said, an election cry was raised, "Give us back our eleven days!" and in politics we seem to be no wiser than our ancestors.

BECAUSE, therefore, it is always possible for the party defeated at a general election to say that "the" question was "not fairly before the electors," there have been at various times academic proposals to submit questions of great public moment to a "referendum," and in the text-books of constitutional procedure much is often made of this method of seeking the "voice of the people." The classical example of this institution (if it is not, indeed, the only one) is the confederation known as Switzerland. There the citizens vote a simple "yes" or "no" on certain measures which have been approved by the Federal Legislative body; but then in Switzerland they have practically no party government. They have no foreign politics, and they are a small country, largely homogeneous in interests, if not in language, and public affairs are conducted with a quiet sobriety which we should regard as "sleepy." And Napoleonic "plébiscites" have rather discountenanced the method of reference of a single point to universal suffrage.

## ITEMS OF INTEREST.

### GENERAL.

THE London County Council has arranged to hold another conference of teachers from elementary and secondary schools and technical institutes. The conference will be held on January 5th, 6th, and 7th. The meetings will be held at Birkbeck College, Bream's Buildings, Chancery Lane, E.C. At the first meeting "Specialisation in Schools" will be discussed. Addresses will be delivered by Mrs. Sophie Bryant, on "The Value of Specialisation

in Secondary Schools"; by Mr. Frank Bulley, on "An Experiment in Specialisation in Elementary Schools"; and by Dr. Borland, on "The Assistant Teacher as Specialist in Singing in Elementary Schools." The second meeting will consider the subject of "Memory." Addresses will be delivered by Dr. C. Spearman, on "The Relation of the Memory to the Will"; by Dr. E. O. Lewis, on "Some Interesting Investigations on Memory"; and by Dr. F. H. Hayward, on "The Cultivation of Memory." The third meeting will take up "The Teaching of Literature and History." Addresses will be delivered by Miss R. Bassett, on "The Dramatisation of the Teaching of Literature and History"; by Mr. Arnold Smith, on "Some Experiments in the Teaching of History"; and by Mrs. Goldsmith, on "The Extension of the Teaching of General Literature in Schools." The fourth meeting will discuss "The Teaching of Geography." Addresses will be delivered by Mr. B. C. Wallis, on "The Teaching of Geography in Secondary Schools"; by Mr. J. Fairgrieve, on "A Practical Room for the Teaching of Geography"; and by Mr. C. J. Rose, on "Open-air Teaching in Geography." At the fifth and sixth meetings "Educational Experiments in Schools" will be described. Addresses will be delivered by Mr. B. Lewis, on "A Combined Scheme of History and Geography Teaching"; by Mr. E. Thomas, on "Pictorial Aids for the Teaching of Geography and History"; by Mr. A. G. Gawler, on "How to Secure Individual Work in Large Classes"; by Mr. J. Greer, on "An Experiment in Number Teaching"; by Mr. A. E. D. Lowden, on "Stencilling—a Valuable Form of Hand-work"; and by Mrs. Sandford, on "Animals in Infants' Schools." No charge will be made for admission to the conference. Application for tickets of admission should be made to the Chief Inspector, London County Council, Education Offices, Victoria Embankment, W.C.

THE North of England Education Conference is this year to be held at Liverpool, in the University of Liverpool and the Liverpool Collegiate School, Shaw Street. The meetings will begin on January 5th, and extend over three days. On the second day a united conference will be held at the Collegiate School, when "The Educational Ladder" will be discussed. Papers will be read by Sir James Yoxall, M.P., and Mr. H. V. Weisse. In the afternoon of the first day a sectional meeting will take place at the University. "Art Education in Relation to Trade and Manufacture" will be considered. Papers will be given by Mr. F. V. BurrIDGE and by Messrs. W. Cain and E. H. Williams jointly. A second sectional meeting, at the Collegiate School, will deal with "School Gardens and Nature-study." The papers will be by Mr. Graham Balfour, the Rev. T. C. Walton, and Mr. W. A. Loft-house. A third sectional meeting, at the University, will consider "The Relation of Phonetics to the Teaching of English and Modern Languages." Prof. Walter Rippmann and Mr. E. J. A. Groves will read papers. On January 7th a united conference at the Collegiate School will discuss "Scholars' Employment Committees, Labour Exchanges, and After Care." The papers will be by Mr. R. Williams and Mr. Frank J. Leslie. A sectional meeting at the University will consider "The Relation between the Library and the School." Mr. G. T. Shaw and Mr. C. J. R. Tipper will read papers. "Education in Citizenship" will be taken up at a second sectional meeting at the University. Papers will be read by Mr. J. L. Paton and Miss Geraldine Hodgson. A sectional meeting at the Collegiate School will discuss "School Music." Papers will be given by Dr. Arthur Somervell and Mr. Harry Evans. All communications should be

addressed to the hon. secretaries, North of England Education Conference, Education Offices, 14, Sir Thomas Street, Liverpool.

THE fifth annual meeting of the Historical Association will be held at University College, London, on January 6th at 5 p.m. and on January 7th at 10.30 a.m. At 6 p.m. on January 6th Prof. Sadler will deliver an address on "The Value of Historical Studies to Students and Administrators of English Education." On January 7th, at 10.30 a.m., the following resolutions will be considered: That in the opinion of the association it is desirable (1) That in every secondary school there should be, at any rate, one specialist qualified to supervise the history teaching of the school, and that the history lessons should only be entrusted to those who are competent and interested in such work. (2) That all school-leaving, matriculation, and professional entrance examinations should include as a compulsory subject the outlines of British history up to the present day, including the growth of the Empire and such European history and such geography as are essential to the understanding of the history. (3) That the paper in an examination of this type should include (a) elementary questions to test knowledge of the main dates, simple facts and general course of the subject, and (b) questions to show power of expression and appreciation of periods and movements. (4) That such a paper, as a whole, should not be entirely confined to political history, and that the second part of the paper, at any rate, should contain a choice of questions. All members are invited to take part in the discussion, and those unable to attend the annual meeting are invited to state their views in writing on any questions brought before the meeting.

THE twentieth anniversary of the foundation of the Training Colleges of the Victoria University of Manchester will be celebrated on January 4th. The honorary degree of LL.D. will be conferred upon Mr. Walter Runciman, M.P., President of the Board of Education, and that of M.A. upon Councillor Margaret Ashton; Mr. William T. Goode, first master of method in the Training College; Miss Lydia Manley, principal of Stockwell Training College; and Mr. G. Sharples, member of the Consultative Committee of the Board of Education.

THE annual general meeting of the Association of Assistant-masters in Secondary Schools is to be held on January 13th at University College School, Hampstead, London. A business meeting will be held in the morning at 10 p.m., and a public meeting in the afternoon at 2.30 p.m. The programme for the public meeting includes a discussion of the interim report of the committee on grammatical terminology, to be opened by Prof. E. A. Sonnenschein, and a paper by Mr. J. E. Matheson, one of the joint secretaries of the Oxford and Cambridge Schools Examination Board, entitled "Looking Before and After."

THE annual general meeting of the English Association will be held in London on January 27th and 28th. Viscount Morley of Blackburn will deliver his presidential address on January 27th at 6 p.m. in the Theatre, Civil Service Commission, Burlington Gardens, W. The business meeting will be held in the same place at 4.30 p.m., and in the evening there will be a dinner at the Criterion Restaurant, at which Viscount Morley will preside. On the morning of the 28th there will be a discussion on "Phonetic Spelling" at University College, Gower Street, W.C., in which it is hoped that Prof. Skeat and Messrs. Robert Bridges, Daniel Jones, and William Archer will

take part. Dr. T. Gregory Foster, Provost of University College, will preside. Further information can be obtained from the secretary, Miss Elizabeth Lee, 8, Mornington Avenue Mansions, West Kensington, London, W.

THE annual meeting of the Geographical Association will be held on January 14th in the London School of Economics, Clare Market, W.C. At 11 a.m. short papers on important problems will be read as follows: "Geography at Seven Years," by Miss C. von Wyss; "Map-making as a School Subject," by Mr. F. Beames; "Practical Contouring Round a London School," by Mr. J. Fairgrieve; and "The Training of Teachers in Geography," by Mr. J. F. Unstead. A public meeting will be held at 3 p.m., when the president's address will be delivered, and a lecture given by Mr. G. Montagu on "The Highways of England and Wales, Past and Present, and their Relationship to Geographical Conditions."

THE general meeting of the Association of Public School Science Masters will be held on January 11th and 12th at the London Day Training College, Southampton Row, W.C. The president, Sir E. Ray Lankester, F.R.S., will take the chair at 3 p.m. on the first day, and deliver an address upon "Compulsory Science *versus* Compulsory Greek"; afterwards Mr. A. Vassall (Harrow) will read a paper upon the education of medical students; in this special stress will be laid upon the vexed question of student registration, explaining that such registration is unnecessary, and urging schoolmasters to support those universities and boards which do not demand it. Mr. Hooton (Repton) will read a short paper upon the experimental determination of the equivalent of magnesium. Next morning will be occupied with a discussion upon teaching English in connection with science lessons; the discussion will be opened by Mr. Eggar (Eton) and Mr. Lewis (Oundle). In the afternoon Mr. Talbot (Harrow) will read a paper upon the use of the wave theory in the teaching of light, giving an account of the method in use at Harrow, and Mr. Mott (Giggleswick) will describe the use he makes of rays in teaching optics; both these papers will be illustrated by experiments. The last paper will be by Mr. Stoley (Liverpool), upon teaching the concepts of energy and potential. A dinner will be held on January 11th at the Criterion Restaurant jointly with the Mathematical Association, and there will be a public lunch at the Inns of Court Hotel on the 12th. We are informed that the exhibition of scientific apparatus and books will be the largest ever held by the association, no fewer than eighteen firms having taken space.

THE Headmasters' Conference was held on December 22nd and 23rd at Eton College. The following resolutions were under discussion as we went to press: (i) "That this conference is of opinion that the needs of the public schools will be best met by a differentiation of faculties and (if possible) degrees at Oxford and Cambridge, and the retention of Greek as a necessary preliminary to some, but not all, of these." (ii) "That this conference considers that representation should be made to the University of London that holders of the Oxford and Cambridge school certificate, in which Greek has not been included as a subject, should be exempted from the matriculation examination." (iii) "That the committee be instructed to confer with the Headmasters' Association with regard to pensions and salaries." (iv) "That steps be taken to encourage and improve the teaching of the Bible, and this conference recommends that a knowledge of Scripture be not omitted from, or relegated to an unimportant place among, the intellectual qualifications

necessary for admission to a public school." (v) "To direct attention to the reduction of the age limit in the Indian Civil Service examination." (vi) "That this conference regrets the recent lowering of the minimum age for entry to Woolwich and Sandhurst, and hopes that the minimum age may be raised at an early date."

THE quarterly meeting of the committee of the Society of Schoolmasters was held on December 3rd, when grants for temporary assistance were voted to a large number of schoolmasters and to some widows of schoolmasters.

WITH reference to the recent French Ministerial Decree published in THE SCHOOL WORLD for December, it may be added that with it the Minister sent out a circular letter to each Recteur d'Académie explaining his reasons for issuing the *arrêté*. The most important sentence in this letter is: "La nomenclature à laquelle le Conseil supérieur s'est arrêté n'engage aucun système pédagogique ou philosophique, aucune méthode d'enseignement." In fact, it is really a limitation of nomenclature already in use rather than a new system. We may note that among other terms consigned to the lumber heap are: substantif, adjectif déterminatif, pronom conjonctif, verbe neutre, verbe réfléchi, verbe unipersonnel, passé défini et indéfini, verbes réguliers et irréguliers, while the division of verbs into four conjugations is abolished. The criticisms on the decree from French grammarians and teachers have naturally been numerous; while welcoming it on the whole, they criticise the decision of abolishing the transitive verb, they doubt the identity of reflective verb and pronominal verb, and whether conjunctive and relative pronoun are interchangeable terms. It will be curious to see the effect of this decree on the teaching of French in England. Will it have any effect at all or will the compilers of French grammars fall over one another in their haste to include its decisions in their works as they did with M. Leygues' decrees of July, 1900, and February, 1901?

As the date of the King's coronation has been fixed for Thursday, June 22nd, the Cambridge Higher Local examination in June next will be held from June 12th to June 17th, and not in the following week as previously announced.

THE recently published annual report on the health of the City of Sheffield refers to the results of the medical inspection of school children. One of the matters which in the near future may be expected to bring about a great improvement in the physique of the school children is attention to their teeth, and the consequent removal of much bad health which results therefrom. Another result which may be expected is the spread of the open-air school movement. Not only will there be more open-air schools in Sheffield, but it will naturally follow that some of the open-air methods will be introduced into the curriculum of all the elementary schools. If open-air recovery schools are good for repairing damage done to the health of children, it stands to reason that the introduction of open-air methods into the curriculum of ordinary schools will prevent much of this damage. This plan has received attention from the headmaster of Ranmoor Council School, Mr. J. Eaton Feasey, the author of "In the Open Air," "In the Garden," &c., and the medical officer makes several quotations from Mr. Feasey's books as to the advantages which are derived from open-air schools. One of the most noticeable defects in the schools is the fact that there is frequently no proper means of flushing the classrooms with air during the breaks, because the amount of window space that is made to open is not sufficient for



this purpose. It has to be remembered that the amount of cubic space allotted to each child is very small, and it is therefore essential that the class-room should be well flushed with air at each break or interval. Medical inspection will probably result in even more attention being given to facilities for physical exercises, swimming, &c., and the importance of these matters will perhaps be increased when it is realised that the campaign against consumption is more a question of keeping ourselves as "fit" as possible, in order to fight inevitable small doses of infection, than one of escaping infection altogether.

THE last quarterly report of the Education Committee of the Leicestershire County Council refers to the steps taken by the committee to improve the attendance at the evening schools of the county. For the present session the committee has resolved to revert to the practice of returning evening-school fees to students who make not less than 90 per cent. of the possible number of attendances during this session and do regular homework to the satisfaction of the teacher. In certain districts suggestions contained in the committee's "Handbook of Higher Education" have been put into operation. The suggestions are as follows: "In many large workshops it has been customary to appoint, with the approval of the principal, some responsible agent, whether manager or foreman, who is willing, not only to suggest the names of students, but also to superintend their attendance and progress in the evening school. For this purpose returns of attendance should be forwarded at frequent intervals to the places of employment in order that the most powerful influence may be exerted for the benefit of the student, namely, the influence of the employer himself." Some employers of labour in the districts referred to have undertaken, further, to offer rewards for regular attendance in evening schools.

A VERY important and practical step in the advancement of infant hygiene has just been taken by the Board of Education in the issue of Circular 758 ("Memorandum on the Teaching of Infant Care and Management in Public Elementary Schools," Wyman, 2d.), which deals with the teaching of infant care and management in public elementary schools. It is true that instruction of this nature is now being given, either as a part of the ordinary teaching or as a separate course, and, in the latter case, sometimes in connection with a *crèche*; but it is pointed out that, while only to a limited extent dependent on the initiative and enterprise of teachers, the lessons are not available for all the girls in the school, and are probably too few in number and necessarily given at too great intervals of time to make any lasting impression on the scholars. The Board now suggests that for practical purposes the girls should be formed into two distinct groups, those between seven and twelve years of age and those between twelve and fourteen. A sketch programme of the subjects to be specially dealt with in each case is given, those taught to the younger girls including the essential points of personal hygiene and such simple details of domestic management as young children would readily understand and appreciate, while for the older girls the lessons cover such practical matters as the groundwork of homekeeping, temperance, home-nursing, personal hygiene and the elements of the health of the community, and the care of infants and young children. Particular attention is given to this latter subject, which is elaborated along lines both simple and practical. Actual demonstrations, in which the scholars are themselves to

participate, should be abundantly made use of, such theoretical matter as must be taught being given and explained by the teacher herself; and the use of a "reader" or text-book by the girls is deprecated. The importance of continuation classes in connection with which this subject can be dealt with in greater detail and extended is obvious. As Dr. Janet Campbell points out, this teaching of infant management should be regarded as the culminating point of the instruction in hygiene throughout school life. Its effective realisation would result, not merely in greatly reducing the present high death-rate of infants and young children from causes traceable directly to ignorance and carelessness, but would also go far to ensure a firm foundation for the improved vigour and physique of the adults of future generations.

THE December Cambridge Local examinations were held at 215 centres in the United Kingdom and the colonies. There were 14,219 candidates, of whom 286 are entered for the higher, 4,407 for the senior, 5,663 for the junior, and 3,863 for the preliminary examination. Of the colonial centres, 8 are in India, 6 in Ceylon, 3 in the Straits Settlements, 9 in Africa, 10 in the West Indies, and 3 in America; there are also centres at Bermuda, Mauritius, Seychelles, and Shanghai.

#### SCOTTISH.

THE autumn meeting of the Scottish Classical Association was held at Edinburgh University. The secretary in his report stated that there had been an increase in the number of members, who were now representative of almost all the secondary schools of the country. Prof. Harrower in his opening address said that the regulations of the Department had resulted, as they had foretold, in crushing Greek out of existence in a large majority of schools. Returns had been received from a large number of schools in regard to the numbers studying Greek now as compared with the position in 1905. These showed that in five years there was a decline of 17 per cent. At the present rate of decrease there would soon be no students of Greek in the public schools of the country. If the Department talked less of organisation and co-ordination, and began to be animated by true educational principles, Prof. Harrower thought it would be better for Scottish education. For the present position of Greek, the uniform curriculum of the intermediate schools is mainly responsible. But it should be remembered that Greek is not the only sufferer from the present regulations. German is in a like perilous position. But more monstrous still is the case of domestic arts and domestic science in these schools. The intermediate curriculum has no regard for capacity or aptitude or sex. All have to go through the one mill, with the result that girls, at least, are sent forth to the business and duties of life worse equipped than their sisters in the supplementary classes. If the Classical Association would join forces with the supporters of girls' courses, they would soon drive a wedge into the uniform curriculum. Dr. Rouse then gave an account of the new method of teaching Latin in the Perse School, Cambridge. In the afternoon Prof. Baldwin Brown delivered a lecture on "Recent Discoveries in Crete and their Significance for Classical Studies."

AMONG the questions submitted by the Educational Institute to candidates for Parliamentary elections is one which has a very strong interest for secondary-school teachers. It is in these terms: "Would the candidate support legislation in favour of extending to teachers in higher class schools who are 'recognised' by the Scotch

Education Department the same security of tenure as given to certificated teachers in State-aided schools?" The recent dismissal of teachers in Kelso High School has shown that a School Board may summarily dismiss its teachers in secondary schools, whereas it has to go through a carefully regulated and prolonged procedure before dismissing elementary-school teachers. The Association of Secondary Teachers also prepared a series of questions for candidates. Among these is one dealing with the age restriction for appointments as inspectors of schools. At present thirty-five years is laid down as the maximum age. At this age, nowadays, teachers have only begun to cut their wisdom teeth, and it would be more in keeping with the fitness of things if thirty-five were made the minimum age rather than the maximum. A large majority of the candidates are prepared to support this view, but while they may *propose* it is the Department that *disposes*.

THE annual general meeting of the Modern Language Association of Scotland was held this year in the University of Edinburgh. Miss Fish, in her retiring address as president, referred to the inquiry that had been held regarding the date of the leaving certificate. Replies had been obtained from all the leading secondary schools in the country, and there was an overwhelming majority for a return to the old date. The change to the earlier date had been made by the Department to allow its inspectors to go round the schools to investigate the cases of doubtful passes. As was predicted by teachers at the time, this laudable intention has utterly failed to materialise in practice. The number of candidates is so great that it is a physical impossibility for the inspectors to get round all the schools after the correction of the written papers. The three additional months that would be gained by a return to the former practice would add materially to the efficiency of the work. After a most interesting paper by M. Tanqueray on "The Earliest Books for the Teaching of French in England," a discussion took place on the new regulations for the university bursary examinations. The opinion was strongly expressed that these still left the advantage with the classical pupils, who did not require to go beyond their own group for the obligatory subjects. A committee was appointed to make representations to the university authorities.

THE Education Department has just issued a new circular dealing with the curriculum of junior students. At the outset the Department emphasises the necessity for bearing in mind that the object of the junior student system is to prepare an adequate number of young persons for work in primary schools. This is not intended to preclude the training of the abler students for higher work in secondary schools, but the main purpose of the system should be kept steadily in view. For the purpose of this training for primary-school work the Department lays down in the new circular a minimum course of instruction in each of the following subjects, viz., English, history, geography, mathematics, nature-study, drawing, science, a foreign language, music, and physical training. No fewer than twenty-seven periods of forty-five minutes' duration are to be devoted each week to these subjects. The remaining periods are left at the disposal of the teachers for concentrating on special subjects or groups of subjects. With the general aim of the circular there is hearty agreement among teachers in junior student centres, but the feeling is practically unanimous that twenty-seven periods for the compulsory curriculum is too great a demand. If this is rigidly insisted upon, prac-

tically no junior student in Scotland can be prepared for entrance to the university. Representations to this effect have already been made, and it is probable that a minimum of twenty-three or twenty-four periods will be accepted as satisfactory.

THE Director of Studies to the Edinburgh Provincial Committee for the Training of Teachers directs attention in his annual report for the year 1909-10 to the small number of intending secondary-school teachers in training. Out of a total enrolment of 849, only nine are preparing for the work of secondary education. The Director of Studies lays the blame upon the managers of secondary schools, who seemingly attach little importance to whether candidates for posts in their schools have undergone a course of professional training or not. If such a qualification were made an indispensable condition of appointment by secondary-school authorities, the Director of Studies is satisfied that there would be no lack of students in training for higher work. In arranging for the instruction of students in the methods of teaching, it appears from the report that a departure has been made from the old system, when the work was undertaken by a special methods staff. Now each head of a department is responsible for the instruction in the methods of teaching his own subject. This arrangement has the advantage of placing the more important subjects in the hands of acknowledged experts. On the other hand, such experts may or may not be conversant with the most approved methods of instruction so far as young pupils are concerned. Further, the new system will fail to give the students a sense of the unity of all educational methods. It encourages the water-tight compartment idea of the mind with a special nostrum for the adequate packing of each. Mr. King, the Director of Studies, shows, however, that he is aware of the disadvantages of the new system, and is prepared beforehand to counteract them so far as possible. Mr. King is to be congratulated on the early appearance of his report.

#### IRISH.

THE *Times* in its educational supplement for December published a summary of a report on Irish education made for the United States Government by Mr. Clouesley Brereton, who acted some years ago as one of the temporary inspectors under the Intermediate Board. The report itself has not yet appeared, but this summary is both valuable and opportune. It deals with all three grades of education, primary, secondary, and university. The secondary-school section is concerned mainly with the work of the Intermediate Board. In spite of obvious defects, it has performed two services which outweigh all its shortcomings, viz., it has practically called into existence Catholic public secondary education, and it has given an immense impetus to the intermediate education of girls. The state of secondary education in Ireland in 1878, the year before the creation of the Intermediate Board, is shown by a comparison with Scotland. In that year, out of 100,000 people in Scotland, 371 were receiving a secondary-school education, but in Ireland, out of similar numbers of Protestants and Catholics, there were 199 Protestants and only 2 Catholics. The report places considerable hopes in the results of the new system of permanent inspectors, which may be able to replace partially the system of payment by results of examination. It suggests also the adoption of two leaving certificates, and a system of registration which, it thinks, by eliminating the weaker teacher, would probably enable the better teachers to command higher salaries. It is hard to see how this is

to take place unless more funds are made available for intermediate education, which has suffered such a serious loss in the fall of the grant from the Local Taxation Act from £71,000 in 1900 to £16,000 in 1910.

PROF. CULVERWELL, of Trinity College, delivered last term a course of six public lectures on "The Elementary Principles of Education," intended as a first course in education. The titles of the lectures were: "A simple discussion of some underlying principles," "Herbartian psychology of ideas," "The interaction of ideas: thinking, apperception," "General applications of the principles of the last lecture to teaching: Herbartian preparation," "The Herbartian type of lessons: the formal steps, concentration," and "Herbartian interest: the rival theories of discipline and interest, with especial reference to the training of the will."

THE REV. T. CORCORAN, S.J., professor of education in University College, Dublin, also delivered a course of four public lectures last term on the following subjects: (1) The place, purpose, and scope of historical teaching in Irish schools; (2) The relations of Irish history to other subjects of school work; (3) Historical teaching as affected by our examination system; (4) The localisation of historical teaching in Ireland. In February he proposes to give a course of four public lectures on the practice of historical teaching, which will deal with the details of school practice in the teaching of Irish history as applicable to the district around Dublin, and will be specially directed to assist those who are actually engaged in teaching.

The authorities of the Natural History Museum have discovered a new method for illustrating what is called "nature-study," and have constructed a model of a rock-pool, now on exhibition, showing the wealth of life left by the receding tide. This model depends upon the discovery of a liquid which preserves the shape and colour of the animals, and yet does not evaporate like ordinary spirit. "Limpets, periwinkles, and acorn shells cover the face of the rocks surrounding the pool, and among the seaweed sea anemones of various shapes and colours extend their long tentacles in search of prey. On the floor of the pool are starfish, sea urchins, and crabs of different kinds, while a squat lobster puts forth its claws from underneath a stone ready for any morsel of food that may be washed in by the tide."

THE Irish Technical Instruction Associations are suggesting an Irish Board of Examiners in commercial subjects, which shall be empowered to issue certificates in commercial subjects in place of those now issued by (a) the Royal Society of Arts, (b) the London Chamber of Commerce, and (c) the National Union of Teachers. The associations think that such a Board, being in immediate touch with the various Irish industries, would be in a better position to arrange examinations which would suit the requirements of the country.

THE question of a rate in support of university education is exercising a good many county councils at the present time. Mr. T. P. Gill, the secretary of the Department, gave some suggestive advice to the North Tipperary County Council last month on this subject. He urged them not to take a narrow view of the question, nor to restrict their aid to particular objects. For example, agriculture was aided by abstract scientific research. According to the Act of Parliament, at present scholarships could not be granted from the primary to the secondary school. Post-graduate scholarships should be thought of

and halls of residence. There was likewise university extension, and also the possibility of providing a special course of training suitable for the officials of county councils.

### WELSH.

THE following report and recommendation of the Senate has been adopted by the Court of the University of Wales: "The Senate has been informed that the Board of Education, although prepared to recognise the certificate of the Intercollegiate Board in the subject of geography, is nevertheless unable to countenance the holding of an additional examination in English and history for the purpose of ascertaining which of the candidates have attained a sufficiently high standard in those subjects to satisfy the requirements of the Board of Education for admission into the Day Training Departments of the Welsh colleges. The Senate, therefore, recommends the Court to give permission to the Registrar, at the request of the candidates, to transmit to the secretary of the Intercollegiate Board the scripts, but without any indication of the marks, of those successful candidates in the matriculation examination who may make application for admission to the Day Training Departments, in order that the examiners appointed by the Intercollegiate Board may determine which of these candidates have satisfied the requirements of the Board of Education."

THE Newport (Monmouthshire) Secondary School Subcommittee of the Education Committee has suggested that permission be given to the headmistress of the Newport Girls' Intermediate School to admit pupils to the school to study single subjects at a fee of 10s. 6d. per term. It was pointed out that the intention of the Welsh Intermediate Act clearly was to provide an all-round education. It was, however, decided to give the specialising experiment a trial for twelve months. It is not clear whether the intention is that, on these terms, girls should be allowed to study the whole of the school hours in their own special subject. If so, there seems to be no reason why they should not pay the full school fee. If, on the other hand, girls are admitted to the school for certain hours only in the curriculum, there may arise considerable difficulties in the organisation.

At Welshpool County School prize-day the secretary of the Royal Commission on Welsh Monuments and Antiquities, Mr. Edward Owen, made some interesting suggestions. In dealing with the place of archaeology and antiquities in education, he said it had at last penetrated to the consciousness of the Board of Education that the best way of teaching history was by beginning with local history. In urging this, the Board said there must in all cases be included the study of the actual historical remains of the neighbourhood, such as castles, city walls, monasteries, &c. If the matter was considered important in England it was much more so in Wales, where memorials of the past were far more numerous and had been preserved to a much greater extent. The study of local history, associated as it always should be with the study of local antiquities, was in sympathetic hands capable of exercising more direct effect on the formation of character than perhaps any other branch of study, and he therefore hoped it would win its way into the curriculum of every school in Wales.

THE Carnarvon County School Governors have passed the following resolution with regard to the recent report of the Board of Education: "That, having considered the annual report of the Board of Education (Welsh Depart-

ment), we are of opinion that the first twenty-five sections of the same contain fair comment and helpful criticism of the work done by the intermediate schools of Wales, but the remaining sections contain sweeping generalisations which, in our opinion, are not fully borne out, and are expressed in a manner that is not calculated to have a good effect upon secondary education in the Principality. We further consider the matter so important and the situation so critical that the Board would do well to appoint a committee to inquire into the existing differences between the Welsh Department and the Central Welsh Board with a view to their speedy adjustment."

### BOOKS ON THE BIBLE.

(1) *The Wisdom of Solomon*. Edited by the Rev. J. A. F. Gregg. 190 pp. (Cambridge University Press.) 2s. 6d. net.

(2) *S. Luke*. Revised Version. Edited by the Rev. E. Wilton South. 146 pp. (Cambridge University Press.) 1s. 6d. net.

(3) *The Acts of the Apostles*. By Miss E. M. Knox. Bible Lessons for Schools. 401 pp. (Macmillan.) 3s. 6d.

(4) *The Acts*. By G. H. Gilbert. The Bible for Home and School. 266 pp. (Macmillan.) 4s.

(5) *The Hebrew Prophets for English Readers*. Vol. i., Amos, Hosea, Isaiah (i.-xxxix.), and Micah. Edited by F. H. Woods and F. E. Powell. 192 pp. (Clarendon Press.) 2s. 6d. net.

(6) *The Bible Doctrine of the Sacraments*. By Canon Beeching. 153 pp. (Murray.) 2s. 6d. net.

Both books (1) and (2) are worthy of the series to which they belong. Mr. Gregg's introduction is full of sound learning, clearly set out and well digested, with ample guidance for those who wish to carry their researches further afield or investigate more fully the arguments and evidence adduced by those writers with whom the editor does not agree. The commentary is refreshing from the wealth of variety of its illustrative material. In one note one finds parallel passages drawn from Seneca, Epicurus, Philo, Bailey's "Festus," and George Macdonald, and all the quotations are to the point. But a book for schools and colleges should avoid such an expression as "the penetratingness of wisdom," and unnecessary parade of technical terms such as "wisdom is not hypostatized."

Mr. Wilton South's edition of St. Luke is a sound, practical text-book for school purposes. It is clear and to the point, it stimulates interest without oppressing it, it supplies the teacher with hints for making the narrative graphic and actual.

Both (3) and (4) are from over the water, and are a proof that in the general interest shown by Americans in education, the teaching of the Bible is not overlooked. Miss Knox's books on Genesis and Exodus have taught us what to expect. In this volume she follows the same line of careful, reverent, thoughtful exposition. She follows the good example of Dean Farrar in that she weaves into her narrative the message of the Epistles written by the Apostle. She has a happy way of making real the personality of a Galileo, and there is a touch of actuality about her description of Corinth.

But at times she is disappointing. The "speaking with tongues," the ecstatic utterance that forms a regular feature of religious revival work, is not in any way differentiated from the "speaking with other tongues" of the day of Pentecost, which St. Luke clearly looked upon as something specially miraculous. At Lystra, when Paul has been stoned and dragged outside

the city and left there for dead, she seems to miss entirely the magnificent courage of the man whose first action, after recovering consciousness, was to go back and face the men who had stoned him. Is it any wonder that a young man with Timothy gave up all his other plans and ambitions in life to follow and serve a man who could do that? Again, at Athens, the real situation seems to escape the notice both of Miss Knox and Dr. Gilbert. When St. Paul stood on Mars' Hill and said, "God dwelleth not in temples made with hands," his audience had before their eyes the fairest temples ever built by the hands of man; when St. Paul said, "Ye ought not to think that the Godhead is like unto gold, or silver, or stone graven by art and man's device," there rose before them in full view the great statue of Athene Promachos, and round her on the plateau of the Acropolis were the most perfect works of statuary the human race has ever seen. These are the points which the casual reader misses, and these it is the business of the commentator and expositor to bring out.

The best feature of Dr. Gilbert's edition is the chapter of the introduction which proves the Lucan authorship of the book of Acts from the evidence of the vocabulary and text. His commentary is suited for those who wish to know the results of criticism without troubling themselves about the processes by which the results have been attained. It is a mistake in the bibliography to omit the lives of St. Paul by Dean Farrar, Dr. Stalker, and Conybeare and Howson. Both books might have gained in vital power by an occasional quotation from F. W. Myers's poem on St. Paul.

The editors of (5) have followed the example of Prof. Moulton and printed the text in lines, stanzas, and paragraphs in such a way as to bring out its literary and poetic form. They have added frequent headings so as to guide the reader as to the general drift of the subject, and so overcome the difficulty of those abrupt transitions which make the poetry of the Hebrew prophets resemble the music of the organ. To each prophet there is prefixed a brief sketch of his life and work, and a few short notes are given at the bottom of the page. All vexed questions of criticism are avoided. In short, everything is done to enable the lay reader to do as Jowett bade him, and "read the Bible like any other book." Only by reading the prophets in connection with the events of their time and getting their teaching in its proper setting do we escape from the textarian attitude, which is almost as stultifying in our own day as the dialectical method of the schoolmen was in the days before Erasmus and Colet. To "read the Bible like any other book" is really the surest way to discover how immeasurably superior it is to all other literature. Said Goethe: "I am convinced that the Bible becomes ever more beautiful the more one understands it; that is, the more one gets insight to see, that every word, which we take generally and make special application of to our own wants, has had in connection with certain historic circumstances, with certain relations of time and place, a particular, directly individual reference of its own." This book gives the prophets their historic setting, and thereby makes their message actual.

"The principle of Gothic architecture," said Coleridge, "is infinity made imaginable." And the principle of the sacraments is to make the grace and sacrifice and pardon of God imaginable. The symbol is more expressive and more appealing than any logical statement, because it appeals to a faculty deeper and more comprehensive than the reason. In these Westminster lectures Canon Beeching investigates the teaching of the Bible and the sacraments, and shows how they throw light on the world of nature, on the true nature of man and his relations to the whole

brotherhood of believers, and on the mingling of the human life with the divine. It is a pity that so gifted a writer should not use the Revised Version in his quotations. The Revised Version says, "baptising them *into* the name of the Father . . ." and Bishop Westcott used to say that he would gladly have given his whole life to get that one change made in the text of the English Bible.

### ELEMENTARY COMPOSITION BOOKS.

*Preparatory Course of Literary Reading and Composition.* Edited by Lewis Marsh. viii+240 pp. (Blackie.) 1s. 6d.

*McDougall's Suggestive Lessons in English.* Book VI. 64 pp. 4d.

*Lessons on English Composition, Oral and Written, for Elementary Schools.* Books I., II., and III. By J. C. Nesfield. 69, 96, and 128 pp. (Macmillan.) 4d., 5d., and 6d.

*Practical Spelling. A Junior Course.* By A. A. Hughes. 40 pp. (Longmans.) 6d.

*Practical Dictation* (to accompany above). Same author. 16 pp. 8d.

MR. MARSH, as those who know his "Combined Course of Literary Readings and Composition" will remember, is a believer in applying the "Reform" method of modern language teaching to the teaching of English. By the "Reform" method he evidently means the method of that school which takes the reader as the nucleus of all class teaching. In the present book he has applied this method to the use of quite young pupils. As he points out, it is possible in the circumstances to take only a very few types of literature; but each passage chosen has appended to it a series of exercises in composition, the object of which is not only to encourage observation and imitation, but to drive home fundamental principles of composition. "The Composition Exercises," we are told in the preface, "are graduated, and each set leads up to a more or less complete form of essay." The extracts are certainly well chosen, and the exercises—with the possible exception of a rather too great fondness for the correction of faulty sentences—are judicious; but, after all, we think that a competent teacher will evolve for himself exactly the same kind of material and exercise from the literature met in the ordinary class reading, without having recourse to what must, after all, be a detached set of selections. For less experienced or less competent teachers Mr. Marsh's book should serve as an invaluable guide.

The chief thing that strikes us about Messrs. McDougall's "Suggestive Lessons in English" is the extreme accuracy of the title; there is so much suggestion that there is very little left for the pupil to do. Most of Book VI. is taken up with essay-writing, but the suggestions offered are chiefly those matters of fact which a teacher would naturally supply—if he set any subject so remote from his pupil's experience as glass-making, or the animals of Africa. The first essay proposed is, we note, one on "English," in comparison with which one that follows, on "Soap-making," is no doubt distressingly simple. A good many historical subjects are given—a fantastic medley, as it seems to us—and the rest of the book is chiefly taken up with letter-writing.

We prefer to hurry on to Mr. Nesfield's three books intended for elementary schools. Here we have systematic oral work in grammatical composition and reproduction of short tales and descriptions, leading up gradually to interesting exercises on discrimination of words, to prose

order, to the meanings of prefixes and suffixes, and eventually to written composition of more than one paragraph—in fact, to the short essay. The whole is worked out with Mr. Nesfield's wonted care and method.

Mr. Hughes has made an interesting attempt to keep young children—in their first year of school at the age of nine—in the right path of English spelling. He has drawn up a table of some two thousand fairly common words, mainly, that is, the child's own vocabulary, and to accompany it he has composed short dictations on topics likely to be interesting to the child, containing, in sections, the words he has already learnt to spell. In preparatory schools and in lower forms of secondary schools Mr. Hughes's little books may well find a place.

### A SCHOOL WEEK IN THE COUNTRY.

*A School Week in the Country.* By Mary A. Johnstone. Board of Education, Educational Experiments in Secondary Schools. ii+56 pp. (Wyman.) 4d.

AMONG the numerous accounts of the school journey and the various forms it has assumed, few will be found more interesting and suggestive than the report before us, in which the headmistress of the Girls' Department, Grange Road Secondary School, Bradford, describes the work done by teachers and pupils of the school during four annual weeks in the country. Two out of the four journeys have been to Austwick, near Ingleborough, and two to Eastby, a village lying midway between Skipton and Bolton Abbey.

In each case the primary aim of the course was systematic field-work, especially in botany and geology, though, naturally, advantage was taken from time to time of the special opportunities such districts afforded of open air sketching and the study of local history.

Since in most girls' schools the needs of botany would probably constitute the main reason for undertaking such country journeys, the experiences gained in this field have especial value for other workers. Miss Johnstone emphasises the principle that "the study of plant associations, involving the constantly recurring necessity for determining the nature of the dependence of the plant on its environment, should take precedence of all other exercises." Very interesting is the description of the results obtained by the class in such ecological work on the vegetation of the lanes, ponds, fields, bogs, becks, and moorlands of the district. It is cheering, too, to be told that "we made *no* collections."

The field-work done by the girls in geography and geology was no less stimulating and profitable. The four journeys enabled the pupils to compare two districts contrasting strongly in geological character and resulting scenery. Eastby furnished excellent opportunities of studying the development and work of a river, and also of undertaking "a very simple bit of surveying, which it is intended to improve upon in future efforts." On the other hand, Austwick Dale and its surrounding hills form a small but representative portion of Ingleborough, which, as Miss Johnstone remarks, is probably unrivalled in England in point of variety of problem and of bold physiological types. Lines of faulting, seen to coincide with sudden changes in the character of the landscape; identity of rock structure on opposite sides of valleys, as evidence of a once continuous plain; "a veritable exhibition-model of spring formation"; alien boulders in profusion; "the finest example of a lateral moraine in England"—naturally delighted the elder girls, whose interest had been awakened beforehand by simple lessons in geology as a part of the

geography syllabus. In the circumstances, one is scarcely surprised to learn that "in the opinion of the seniors the charms of geological research are far superior to the tamer joys which botany has to offer."

The particulars of housekeeping arrangements, the remarks on questions of discipline, and the analysis of the social aspects of the journeys, are as deserving of attention as the more directly educational sections of the report, and will furnish helpful guidance to teachers organising similar ventures.

### THE SPIRIT OF ROMANCE.

*The Spirit of Romance. An Attempt to define somewhat the Charm of the Pre-Renaissance Literature of Latin Europe.* By Ezra Pound. x+252 pp. (Dent.) 6s. net.

THIS is a tantalising book, but it draws one to read. It hardly corresponds to its title. Romance, if that word has a meaning, surely implies illusion; if it be used in the scholarly sense, for the literature of the Romance languages, as the sub-title suggests, yet that is not the meaning which the reader will apprehend at once. The best of these poems are not romantic; they are true. Indeed, the truth of vision and of feeling is very remarkable in the best of the Troubadours, and, of course, it is supreme in Dante.

Mr. Pound has a peculiar allusive style, which is often dark to those who have no knowledge of his subject. He is also apt to refer by title to poems and parts of poems, gives hints of songs, which he does not quote. The book is really a note-book—notes on the Provençal poets, notes on Dante, notes on Villon. Some of the translations are in verse, most in prose (which is often very good); part in small print, part in large print, without any apparent reason. Mr. Pound gives specimens of what he admires rather than criticises: yet he has flashes of insight, and occasionally he gives a vivid phrase that one remembers—often, however, a careless one. How can a poem be "most unique" (p. 41)? Why that silly sentence about "Mr. Yeats" (p. 45)? Is it irony, or is Mr. Yeats the "great poet" who explains the processes of mind in other great poets, and says that a time comes in their lives when they no longer care to rhyme mountain with fountain? A number of technical terms are used but not explained, as *alba* and *nazo*; and there is no index! What word is *quaeror* (p. 47)?

Looking back over the book, we like best the discussion of Arnaut Daniel, De Born with his battle songs, and Villon: we like least the long summary of the "Divina Commedia." The best piece of criticism is that of the "Romaunt of the Rose," which is uncommonly good. But Mr. Pound has a merit that makes up for many drawbacks: he makes his readers want to read and to read about the authors he discusses. The present reviewer is going to do so without delay, and begs to thank Mr. Pound.

### RECENT SCHOOL BOOKS AND APPARATUS.

#### Modern Languages.

*Lectures Scolaires Élémentaires.* Edited by W. M. Poole and E. L. Lassimonne. (Murray.) 1s. each.—If recent additions to the list of the educational publishers afford an indication of the direction in which things are moving, the reform teacher of modern languages has reason to be satisfied. For some time he has complained

that there was an insufficiency of simple texts with reform exercises; soon there will be no more reason for complaint. We have before us two volumes of the above series, viz., "*Le Chêne parlant*" (vii+70 pp.) and "*Les Voisins de Campagne*" (iv+76 pp.). The former, taken from G. Sand's "*Contes d'une grand'mère*," is a story well suited for elementary work; the latter is an amusing little play by Monnier. The text is printed on left-hand pages; opposite are ten *questions de sens* and ten *questions de grammaire*. At the end of the book are some notes, mainly explanations in French of words and phrases that might give difficulty. The plan adopted does not commend itself to us: it would seem better to divide the text into suitable sections than according to the arbitrary arrangement of the printed page. So far as the questions on the subject-matter are concerned, it is really better that the pupil should not have the text before his eyes; and the grammar questions mostly have no direct reference to the text, although they are based upon words and phrases occurring in it. In drawing up these questions the editors show the same skill and ingenuity as in their previous publications, but they do not always escape the charge of making up puzzles. Thus a pupil (and perhaps a teacher) may be uncertain what answer to give to: "*Exprimez en un seul mot: comme un prince.*" "*Le contenu des armoires*=pronom+verbe+les armoires." "*Singulier de: deux mille francs.*" A good rule for the writers of elementary reform exercises, which should be more frequently observed, is that the answers to questions on single words should be contained in the text; thus, if the text contains the word *froid*, the exercise might ask for the opposite to *chaud* or the adjective to *refroidir*, but not for the opposite to *froid* or the verb derived from it. Another suggestion to the editors is that incomplete sentences should be avoided; we refer to such exercises as "*Exprimez au moyen d'un adverbe: ne s'arrêta que.*" "*Donnez des pronoms au lieu de: Monsieur est, &c.*" "*Conjugez: moi qui n'ai eu.*"

*Dumas, Pages Choisies.* Edited by B. L. Templeton. 184 pp. (Oxford University Press.) 2s.—A good selection of some of the most exciting incidents in Dumas is here edited on reform lines, and supplied with a reform vocabulary. The text is divided into rather long sections (of about five pages), and each of these has a *questionnaire* and some exercises. It is interesting to note that these are not all "applied grammar," but include "crude grammar" questions. Occasionally the reform exercises do not escape the usual risk of becoming almost puzzles; but generally they are excellent. The vocabulary is practically complete. Each word is followed by its phonetic transcription, and here, too, great care has been taken to ensure correctness. Where phonetic printing is concerned a slip now and then is excusable; we have noticed very few, and those mostly affecting the quantity of vowels. To make the penultimate of *abuser*, *décourager*, *séparer*, *succéder* long may lead to faulty stress; in such cases it would be better to adopt the symbol for half-length. To make the second vowel sound of *paysan* long is, of course, a mistake; and there is no nasal vowel in *terreur*.

*Madame de Girardin, La Joie fait peur.* Edited by H. H. Horton. 72 pp. (Blackie.) 8d.—This play has stood the test of time, and deserves to be reckoned among the few modern French plays suitable for school use. Mr. Horton has supplied an introduction in which he draws a very sympathetic picture of its brilliant authoress, and notes which are good and clear, but perhaps rather too full. Rarely is a note incorrect, as, for instance, that on

the *t* of *apporte-t-il* (p. 60), which has nothing to do with the final *t* of the third person singular in Latin.

**German Idioms and Expressions.** By H. M. Maitland. 55 pp. (Ouseley.) 1s. net.—This book is intended for everyday use, and is said to be alphabetically arranged. The latter is only true in a very elastic sense; thus under C phrases with "catch" occur in six different places; under F "for the time being" occurs twice, with eleven other items intervening; "I take great pains" appears under I—obviously *take* or *pains* are important, and the phrase should have been given under T or P. The renderings are not always good: "happiness without alloy" is *ungetrübtes* rather than *vollkommenes Glück*; "high living" is not *kräftige Nahrung*; "on his behalf" is not *zu seinem besten*. Perhaps the worst feature, however, is the unpardonably slipshod proof-reading; what is one to say of such misprints as *Feine ton* for *Feiner Ton*, *shr* for *sehr* and *nich* for *nicht* (in consecutive lines), *halk* for *halb*, *nur beinen* for *mir keinen*, *austener* for *aus teurer*? Apart from careless punctuation, we have found close on 100 misprints in a text which in bold type covers thirty-four pages.

**Deutsche Taschengrammatik.** Von Dr. A. Keller. 48 pp. (Mudie.) 1s.—This is a neat piece of work which may appeal to some teachers of German on the look-out for a little grammar written in German. They will perhaps consider it rather too much condensed. They will, for instance, miss a list of common words taking -er in the plural and an alphabetical list of the strong verbs. Occasionally statements are made that are not altogether accurate. *Die Truppen setzen über den Fluss* is not an example of *übersetzen* (p. 24); the rule for forming the second singular of the imperative given on p. 26 would produce *träg* from *tragen*; it is not correct to speak of *ie* in *blies* as an *Ablautsstufe* (p. 29); the term *Rückumlaut* is no longer used in connection with *brennen*, &c. (p. 29). The section on syntax is ingeniously put together, and presents much information in a small space.

#### Classics.

**Greek Saints and their Festivals.** By Mary Hamilton, Carnegie Research Fellow. 212 pp. (Blackwood.) 5s. net.—This book contains the results of three years' travel in Greek lands. The author has visited a large number of sites, and describes the customs at first hand, with references to other workers in the same field, especially the veteran Polites. We cannot say that she has exhausted the subject by any means: but she has collected some interesting information not easily accessible elsewhere. The festival of Our Lady at Tenos is, of course, well known: but another festival of Our Lady, almost equally frequented by dwellers in the eastern Levant, that of Ayassos in Lesbos, does not seem to be mentioned. We may perhaps doubt whether Miss Hamilton's travels extended as far as Lesbos; for although she mentions the church at Mandamadhos, she does not mention its unique interest in possessing, not an icon of St. Michael, but a figure in the round. In discussing the identification of saints with ancient gods, she makes a good point by showing that the tradition may be permanent even if the saint did not "take the place of the god" (p. 19). What, may one ask, is the feast of the Lesser Mysteries *ἐν Ἀργῇ* (p. 33)? and why is an Italian quatrain said to be in Albanian (p. 34)? A very fanciful and groundless speculation is that on p. 153, where it is suggested that the Venetian Wedding of the Sea may have influenced Greek custom. There is no resemblance at all, apart from the unlikely-

hood. The whole of this book goes against such a supposition. The chapters in the book differ very much in style: some are based on authorities referred to or quoted, and are meant for the student; some, like the chapter on Tenos, are thin and popular.

**Caesar, De Bello Gallico.** Book VII. Edited, with Introduction, Notes, and Vocabulary, by S. E. Winbolt. viii+176+xlvi pp. (Bell's Illustrated Classics.) 1s. 6d.—Different editors have different aims, Mr. Winbolt tells us: and his is chiefly "to keep on hinting how Caesar's Latin may be translated into sound, modern, idiomatic English." This, we venture to submit, is the teacher's business when he is engaged in translation; and if he will lead his pupils with care, he should be able to educe most of these renderings from them. What is printed and put into the pupil's hands should be something different, we believe. But admitting the editor's aim, we are glad to say that he has carried it out with success. There are a number of other notes, most of which help the reader. We regret, however, the large number of explanations of elementary grammar and the English analysis. A number of English sentences, modelled on the text, are added for retranslation.

**The Odyssey, Translated into English Verse, XVII.-XXIV.** By J. W. Mackail. 220 pp. (Murray.) 5s.—This volume brings Mr. Mackail's *tour de force* to an end. Perusal and pondering has confirmed our first opinion of it: amazingly clever, usually simple, agreeable to read, peaceful, dreamy, but not Homer. There are a few affectations like "bright of goddesses" (which really has no meaning without the Greek), and some inversions due to rime: apart from these, the language has a severe simplicity which is a very welcome change from the modern florid fashion. So is the rhythm a pleasant change from the over-hurrying metres which Mr. Way and others use. This is a translation which no doubt does not give the feeling of Homer's rapid brilliancy, but it has a real atmosphere, a consistent tone: and an English reader might well feel after reading it that Homer was a poet and could tell a story well. On this score we feel more strongly than we did at first: it is a great merit, for this is all that could be said for either Chapman or Pope in their own day.

**The New Testament in the Original Greek.** The text revised by B. F. Westcott and F. J. A. Hort. With Greek-English Lexicon, by W. J. Hickie. 618+214 pp. (Macmillan.) 7s. 6d.—Westcott and Hort's text is accepted now as a standard, and we need say nothing about that. Select various readings are given at the foot of the page. There is an excellent critical introduction, a list of suspected readings, a list of noteworthy rejected readings, and a list of Old Testament quotations. Altogether an excellent manual. Mr. Hickie's lexicon has often been reprinted since it came out in 1893. It is useful, but needs a thorough revision now in the light of the discoveries of papyri. We regret very much the form of the book, which is small and fat, the print too small for schoolboys, and the margins mean. The lexicon also should not be bound up with the book.

**An Outline History of the Roman Empire (44 B.C. to 378 A.D.).** By W. S. Davis. xii+222 pp. (New York: The Macmillan Company.) 3s. net.—One cannot seriously criticise a book that compresses the reign of an emperor into one paragraph; but the book is right so far as it goes, and quite readable. We do not think that it would



be so useful practically as a skeleton outline to be used for reference in reading the original sources; it may be found useful, however, and we hope it will. A list of provinces (under Trajan) and the different kinds of governors will be useful.

*Greek Unseens: One Hundred Passages for Translation at Sight in Junior Classes.* With Introduction by W. Lobban. xvi+68 pp. (Blackwood.) 2s.—The introduction has hints on the object and method of translation at sight. The pieces come from Xenophon, Arrian, Lucian, Euripides, Menander, Plato, Plutarch, Homer, Thucydides, and others. They are fairly easy.

*Exercises on Edwards's Story of the Kings of Rome.* By W. Caldecott. 24 pp. 6d. net.—This book contains exercises, five English sentences in each, on the sections of Edwards's book. The grammatical points are stated at the head of each.

### English.

*A First English Course.* By Frank Jones. xi+302 pp. (Blackie.) 2s. 6d.—Those who know the Latin Course, of which Mr. Jones is part editor, will be prepared to find that his present excursion into the teaching of English is marked by sound sense and sympathy with beginners' difficulties. That he has broad and modern views will be seen by glancing at the headings of the parts into which he divides his book. They include grammar, analysis and synthesis, punctuation, composition, poetry, figures of speech (metaphor and simile), and sounds and symbols. Grammar—although Mr. Jones protests, and rightly so, that this book is not a formal grammar—takes up nearly half the space; and if grammar is treated in the inductive and skilful method adopted by Mr. Jones there is much to be said for the proportion. We are glad to see that the paragraph and not the sentence is made the unit in composition; its use as illustrated by Leigh Hunt's "Essay on Pantomimes" is well shown. Some of the topics suggested for essays are not very suitable, and we think that the elaborate skeletons supplied should arise from discussion in class. The chapter on phonetics is one of the simplest and clearest we have seen. We welcome Mr. Jones's book as a genuine contribution to sane methods of teaching English.

*A Modern Dictionary of the English Language.* iii+764 pp. (Macmillan.) 1s. 4d. net.—A suitable dictionary for schools has long been wanted, and is at length supplied. The editor in his short preface lays down the essentials required; he says that such a book should be (1) helpful in the reading of ordinary current literature; (2) a guide to the peculiarities of spelling and pronunciation; (3) free from all objectionable words and meanings; and (4) printed in very bold, clear type. If he is right—and we are quite sure that he is—this modern dictionary will soon be widely used. We have tested it in innumerable cases and always found what we required. We cannot dismiss it without expressing our great appreciation of the type used: it could not be better.

*Webster's Little Gem Dictionary and Reference Manual.* 240 pp. (Bell.) 1s. net.—If there are still people who carry dictionaries in their pocket, here is the book for them. Besides a dictionary, there is thrown in a gazetteer of the world and—as the auctioneers say—other effects too numerous to mention. Those who value their eyesight will treat this mass of information with the respect it deserves—by carrying it always in their pockets and—keeping it there.

*A First Course in English.* By W. S. Beard. x+128 pp. (Methuen.) 1s. 6d.—The evident purpose of this book is to prepare candidates for such examinations as the Preliminaries, Locals, and County Council scholarships. It is as unsatisfactory as most such compilations—proceeding from grammatical definitions to more or less wooden illustrations; it has little right to call itself a course in English, seeing that it is wholly concerned with grammar. We note, however, that the author states in the preface that his book "provides side by side a progressive course in analysis and elementary composition"; all we have been able to discover that could by any stretch of language be called composition is contained in some "examination questions" towards the end of the book. We suggest to the author that his definition of a class noun is peculiar: "A class noun is an ordinary common noun"!

*Nelson's English Practice.* Parts I. and II. 55 pp. each. (Nelson.)—These neat little books are meant to teach the spelling of common words, the formation of easy sentences, the elements of punctuation, and a few rudimentary notions of grammar. They are very skilfully planned on the basis of pictures. The clear print, good paper, and well-executed illustrations are very welcome.

### History.

*From Metternich to Bismarck.* By L. Cecil Jane. 288 pp. (Clarendon Press.) 4s. 6d.—The author describes this book as "a text-book of European History, 1815-1878," but it is either more than this or something instead. The space is too limited for both a statement and a commentary, and Mr. Jane seems to be more interested in the latter than the former. His thesis is briefly this, if we understand him rightly. There was a "law and order" evolved at the Congress of Vienna, which Metternich strove to uphold, though growingly conscious that it could not last for ever. There was, too, a "law and order" of another kind which had arrived by the years 1870-1, and had been brought about by another European statesman, the first German Chancellor. Between these two more or less stable conditions was a welter of disturbance, in which constitution-mongers, military and journalist, misled the masses who wanted bread into movements for "liberty," nationalist or parliamentary. The story of this period is told with graphic power—the ineptitude of the restored Bourbons, the "umbrella" of Louis Philippe and the charlatanism of the "third" Napoleon, the journalist agitators of Germany with their fiascos of 1830 and 1848, and those of Hungary and Croatia in the revolutions of the latter year. The growth of Italian unity is traced, with the share taken in that work by the prophets and statesmen of the period, and the imperfection of that unity, still apparent, and the burden it has laid on Italy duly remarked. The book is well worthy of study, and could have been written only in this generation, when we are suffering from the disillusion which have come about after the ideals of the nineteenth century have been realised. There are several maps, as well as a good index.

*Town Study.* By M. M. Penstone. xiii+454 pp. (National Society's Depository.) 4s. net.—This is a plea, addressed to teachers, for the study of towns, as a correlative to nature-study, which has grown so much of late. The first chapters are devoted to pointing out the profit of such study and to deprecating the apparent difficulties in the way. The rest, and far the larger part of the book, sets forth with many illustrations, both pictorial and other, how such study should be pursued under many

headings, such as the reason for the position of towns, the castle, the monastery, the cathedral, roads, markets, government, and so on. It will be a useful and interesting addition to the teacher's library, and should lead to much desirable addition of interest to the school lessons.

*Landmarks in the History of Europe.* By E. M. Richardson. xii+203 pp. (Bell.)—This little book has been developed from notes written for the purposes of class teaching, and is to be regarded as a minimum to be placed in the hands of the children, to be everywhere supplemented by oral teaching. It sketches in outline the history of Europe from 500 B.C. to 1870-1. The story is well told, and illustrated with some twenty maps and pictures, the latter mainly views of places; but it would be better if the author were more exact in her terminology. She confuses "Emperor," "Austria," "Prussia," "Germany" in such a way as leads one to suspect that her "authorities" have not included any work on the Holy Roman Empire.

*Outline Notes on English History.* By J. S. M. Ward. ix+195 pp. (Redhill: Bell.)—These are scarcely "outline" notes. They together form a thorough epitome of English history, and our only complaint is that they will strike the average teacher as formidable. But if the book is used as the author suggests in his preface it will prove a valuable help in class teaching. Its range is from prehistoric Britain to the death of Anne.

#### Mathematics.

*Cambridge Engineering Tracts. No. 1. Vibrations of Systems having One Degree of Freedom.* By B. Hopkinson. iv+54 pp. (Cambridge University Press.) 2s. 6d. net.—The first chapter contains an analytical discussion of oscillations of systems defined by one co-ordinate, special attention being devoted to the physical interpretation of the terms in the equations of motion. In the remaining chapters applications of importance to engineers are considered, including the motions of measuring instruments, such as engine indicators, galvanometers, and pendulums for measuring the roll of ships or the pull of locomotives. Resonance and self-excited vibrations are discussed in connection with the rolling of ships, the vibrations of electric bells, and the "hunting" of dynamos. Although primarily intended for engineers, all who are interested in higher applied mathematics will find the tract well worth their study.

*The Theory of Elementary Trigonometry.* By D. K. Picken. vii+48 pp. (Whitcombe and Tombs.) 2s. 6d. net.—The writer states that his object is to present in strict logical sequence the fundamental theorems of elementary trigonometry, so "that each step shall commend itself to intelligent readers, even though their acquaintance with mathematics be but slight," and at the same time "to satisfy the demands of more advanced students." Perhaps the book may be of some interest to a few persons in the former category, but students will find little if anything which cannot be found in the usual text-books, and the absence of examples, either for illustration or exercise, renders the book of very limited utility.

*An Elementary Treatise on Conic Sections by the Methods of Co-ordinate Geometry.* By Charles Smith. New edition, revised and enlarged. x+449 pp. (Macmillan.) 7s. 6d.—Since its appearance in 1882 Smith's "Conics" has been one of the most widely used text-books on this subject, but during these twenty-eight years, apart from small corrections, few alterations have been made. We therefore welcome the revised and enlarged

edition. The author has wisely refrained from making unnecessary changes, so that the general character of the book remains unaltered, and teachers familiar with the original work will experience no difficulty in using the new one. The original sets of examples remain, but at various points collections of miscellaneous exercises have been inserted, and the number of those fully worked has been increased. The parametric representation of points on a parabola is given for the first time; but the use of hyperbolic functions is now so general that we regret that they have not been used for the like purpose in connection with the hyperbola, as the use of trigonometric functions obscures the analogies with the ellipse. We also think that the analysis of § 185 might well replace the very artificial method in § 178 for determining the tangent to the general conic. Several valuable additions have been made to the chapters dealing with the general conic, systems of conics, and tangential equations. There is much additional matter in the chapter on homogeneous co-ordinates, and the whole has been rearranged. The last chapter, on invariants, is entirely new. In its new and improved form the book will continue to rank as one of the best introductions to the subject which can be placed in the hands of students.

*In the Open Air.* By J. Eaton Feasy. viii+120 pp. (Pitman.) 1s. 6d.—The title of this book is in keeping with the refreshing novelty of its contents. It is a book for teachers describing a series of lessons on practical arithmetic and geometry. The first lesson is typical of all which follow. At the outset the scholars are led to see the need of fixed standards of measurement, and so the yard is introduced, and its magnitude associated with the length of the pace. Then for longer measurements the rod, furlong, and mile are introduced, and associated with the sense of the time or of the physical exertion expended in walking or running these distances. Other lessons are on the measurement of areas, volumes, time, the geometry of the circle and triangle, including Pythagoras's theorem, illustrated by practical applications to the estimation of the size of gardens, the amount of carpet required for a floor, the breadth of rivers, the height of trees, &c. Practical work of this description cannot be done within the limits of the class-room, and the author lays great stress upon the incidental advantages to health which arise from the work being done in the open air. There are numerous photographs showing the different lessons in progress at his own school. Lessons of this description cannot fail to enlist the interest of the scholars; they are of great practical utility, and where the conditions permit of it teachers would do well to give some of their instruction in the manner here suggested.

*First Stage Mathematics.* vi+194 pp. 2s. *Second Stage Mathematics.* viii+222 pp. 3s. 6d. Edited by W. Briggs. (Clive.)—Candidates for the examinations of the Board of Education will find these books to provide exactly what they require. The sections on geometry and algebra are written with a keen appreciation of the difficulties experienced by beginners and private students, and great pains are taken to fill in the gaps which are often found in text-books between the easier and more difficult parts of the subject. The section on trigonometry is not very well correlated with the others; but this is partly the fault of the syllabus, which does not include at this stage the theory of similar figures as part of the geometry. We also notice that in this section the references to geometry make use of the Euclidian numbering, which is not followed in the part dealing with

geometry. In dealing with the generalised index, the proper way to proceed is by definition and not by assumption, and infinity can only be satisfactorily treated in connection with the idea of a limit. Apart from these points there is little to find fault with.

*School Set of Mathematical Instruments.* (Macmillan.) 1s. net.—This set of instruments includes compass, dividers, nickel-plated protractor, and set squares, ruler—the squares and ruler being divided to tenth-inches and millimetres—all contained in a metal pocket-case. They are exceedingly good and accurate, and the price very low.

#### Science and Technology.

*Stars Shown to the Children.* By Ellison Hawks. x+119 pp.+xliv plates. (Jack.) 2s. 6d. net.—It would be difficult to present the popular aspects of astronomy more simply or attractively than they are shown in this little book. The author does not deal only with the stellar universe, as the title suggests, but also with the sun and its system of planets and comets. Every page is intelligible to young readers quite unacquainted with the celestial sights and with the results of studies of the various objects; while the excellent plates—several of which are coloured—show the appearance of some of the most remarkable heavenly bodies as seen with the telescope or portrayed by the photographic camera. We note one or two points requiring revision. Though sunspots may be large and frequent during an epoch of maximum activity, it is scarcely correct to say, as the author does on p. 6, that at such times "the sun's surface is covered with them." The account of the discovery of Neptune does not show intimate knowledge of the facts as regards Adams and the Astronomer Royal, Airy. It is well known that Airy was most methodical; and it was once said of him that if he wiped his pen on a piece of blotting-paper he would date the blotting-paper and file it for reference. To say that when he received Adams's calculations he "put the figures in a drawer and forgot all about them" is certainly incorrect. The author should read the chapter on "The Discovery of Neptune" in Prof. Turner's "Astronomical Discovery" to know what the facts of the case actually are, and should then rewrite pages 42-44 for the second edition, which we trust will soon be demanded.

(1) *The Stars from Year to Year.* With Charts for every Month, and one of the South Polar Stars. 1s. net. (2) *The Star Sheet Almanac for 1911.* With Charts for the Four Seasons, and an illustration of the Orion Nebula, also of the Solar Eclipse of 1905. 6d. net. (3) *The New Star Calendar for 1911.* Designed in the form of a Star, containing the Constellations of the Northern Hemisphere on a revolving Chart, with dates, mottoes, &c. 1s. net. All by H. Periam Hawkins. (The Beds. Times Publishing Co., Ltd., Bedford and London, 90-91, Queen Street, E.C.)—These are cheap and good publications for anyone desiring bold maps of the heavens with the view of becoming familiar with the stars visible from month to month. The first-named includes notes on stars, comets, and meteors; but the reference to Halley's comet should have been revised. It is scarcely appropriate to say now that this comet "will be nearest to the sun on April 20th, 1910, and nearest to the earth about a month later." The publications should be of particular use in connection with nature-study.

*An Automatic Shadow Recorder.* Designed by Dr. W. Miller. (Glasgow: Nicolson.) 36s. 6d. net.—Shadow

tracing plays an important part in the teaching of practical geography, but variable weather conditions frequently interfere to prevent its employment at the only time available for class instruction. Teachers who have had their carefully laid plans for out-of-door work upset by rain, or cloud, or snow, will welcome this ingenious instrument, which renders them independent of weather conditions by placing at their disposal a series of permanent records on shadows. The Recorder consists of a light-tight box fitting closely in an inverted position on to a plane base, round the edge of which a sundial is marked. At one end of the box is a vertical slit for the admission of sunlight. An image of the slit can be recorded permanently at any time of the day by means of photographic printing paper on the plane base. The instrument is also provided with slits of various lengths, with a pin-hole and hand-shutter. An automatic shutter is also provided giving an exposure of two minutes every quarter-hour. This consists of an aluminium disc with four sectors cut out of it, and made to rotate by a small clock. By means of a true north and south line on the top of the box parallel to its edge, and a second line for the magnetic north and south, the recorder can be set at any time by means of a compass to face due south. The shadow recorder can be used for a great variety of experiments, such as the determinations of true south, magnetic deviation, and latitude; the comparison of mean time and apparent time; and as a sunshine recorder and sundial. We cordially commend the shadow recorder as an invaluable addition to the equipment of a geographical laboratory.

*The Aims and Methods of Nature Study: a Guide for Teachers.* By John Rennie. xvi+352 pp. (Clive.) 3s. 6d.—Dr. Rennie's book is undoubtedly one of the most satisfactory guides to school nature-study that has appeared recently. His sections on the framing of courses, and on methods of work under various conditions and limitations, are especially valuable, and they are supplemented by chapters—rather disconnected, it must be admitted—from which teachers may gather useful information on the topics suggested. The illustrations are numerous and helpful.

*Battersea Park as a Centre for Nature Study.* By W. Johnson. 128 pp., with maps. (Unwin.) 1s. net.—It would be difficult to praise this book too highly. Not only does it indicate the wealth of material for the best kind of nature-study which lies at the door of every London teacher (for nearly all the types of animal and plant life described are to be found in every London park); it also demonstrates conclusively that in opportunity for sound outdoor work in history, geography, weather study, and natural history the urban school is but little, if at all, handicapped. It is much to be desired that other education authorities would follow the lead of the Battersea and Wandsworth Educational Council—under whose direction the book is published—and issue guides on similar lines. There could be no better model than Mr. Johnson's admirable book.

*Observation Lessons in Animal Life. Part I. Mammals and Birds.* By F. H. Shoosmith. viii+172 pp. (Charles and Dible.) 3s. 6d.—We are told that "education, and not mere instruction," has been the author's aim in these lessons. He has been very successful in showing how provocative of thought observation of the commonest animals may be made under skilful guidance. The volume is not only a useful school book; it is so well written and so attractively illustrated that it may be recommended to all who are interested in natural history.

*Insect Wonderland.* By Constance M. Foot. xi+196 pp. (Methuen.) 3s. 6d. net.—Most young children would probably enjoy this series of imaginary conversations between various representative insects and their friends. The language is interesting and appropriately simple, and, with one or two exceptions, the information conveyed is accurate. The thirty-eight illustrations, referred to on the paper wrapper as "charming," are decidedly poor.

*Selborne Nature Readers: Junior Book.* By C. G. Kiddell. 190 pp. (Pitman.) 1s. 3d.—This very pleasant little book covers a wide field, and deals with many topics in a manner likely to rouse the interest of young readers. Above all, it is profusely illustrated with delightful pictures, several of which are coloured.

*All Round the Year.* By Margaret Cameron. In four parts. 32 pp. each. (Chambers.) 2d. each; cloth, 3d. In one volume, 8d.—For still younger children these nature readers seem quite satisfactory. They are well illustrated.

*The Study of Plant Life for Young People,* by Marie C. Stopes (xii+202 pp., 2s. 6d. net), was reviewed in THE SCHOOL WORLD when first published in 1906 by the De la More Press. It is now issued by Messrs. Blackie and Son, Ltd.

#### Art.

*Design in Theory and Practice.* By E. A. Batchelder. 268 pp.; 154 illustrations; 66 plates. (New York: The Macmillan Company.) 7s. 6d. net.—To the small army of books devoted to the study and practice of design this inspiring volume from California is a welcome recruit. Taking advantage of the fact that his is a country untrammelled by traditions in respect of decorative art, the author has been at pains to dig down to the bed-rock of fundamental principles, and has built thereon a system of study original in conception, vigorous and stimulating in treatment, and admirably illustrated. In his introduction Mr. Batchelder makes some eminently rational and suggestive remarks as to the place and extent to which "historic ornament" should enter into the study of design. A number of practical exercises form a valuable feature of the book, beginning with simple combinations of abstract lines and forms under clearly defined limitations, and passing by interesting stages to work involving the consideration of construction and adaptation in a manner well calculated to develop in the student a fine sense of appreciation and an intelligent, discriminating judgment. The book teems with terse and pertinent comments on matters dealing with design which may be commended to those who essay to teach design in our day schools as well as to those who are concerned with the higher walks of the art. This book should do much to stimulate the imagination, to arouse latent ideas, and to develop the inventive faculties of the student who is fortunate and wise enough to add it to his library.

*The Styles of Ornament.* By Alexander Speltz. Revised and edited by R. Phene Spiers. 647 pp.; 400 plates. (Batsford.) 15s. net.—As a book of reference this translation of Alexander Speltz's monumental work should be invaluable to artists and art craftsmen of all degrees. Although at first glance appearing to challenge comparison with Meyer's well-known handbook of ornament, it is evident on closer investigation that the present volume possesses distinctive features of classification and arrangement which entitle it to separate consideration and render it unique as an encyclopædia of design. The book, which has been ably revised and edited by Mr. R. Phene Spiers,

deals with the evolution and development of decorative art from prehistoric times to the middle of the nineteenth century, arranged chronologically and further classified according to subject. The attempt to present so great a mass of information in such a compact and convenient form has been singularly successful, and despite the fact that the 400 plates contain upwards of 3,500 illustrations there is little suggestion of crowding. The descriptive letterpress has been reduced to the minimum, and concerns itself with statements of the salient features of each successive style. It is noteworthy, if not even marvellous, that the whole of the 3,500 illustrations are from the pen of the author, and considering the amount of labour and research entailed by such a gigantic undertaking a remarkable level of excellence is maintained throughout the volume, revealing in many cases (notably in the chapter on German rococo) some very fine specimens of pen-draughtsmanship. The utility of the book is further enhanced by the inclusion of a most exhaustive index, so arranged as to allow of immediate reference to any known subject or material.

#### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

#### An Apparatus to show Tidal Phenomena.

A CIRCLE XY is drawn on a large drawing-board, and its circumference is divided into twenty-eight equal parts. At each division point a hole is bored.

A globe A is fixed in the centre of the circle and represents the earth, whilst a smaller globe painted one half white and the other half black can be fixed in any of the

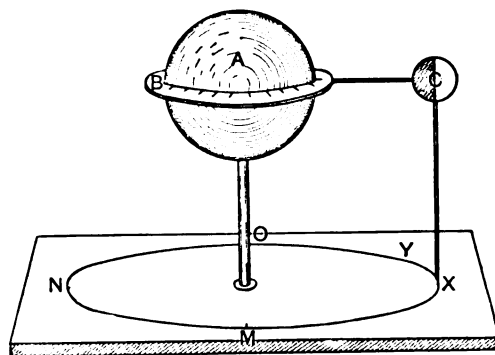


FIG. 1.

holes round the circumference of the large circle. Attached to the smaller globe is an elliptical piece of wood having cut out of it a circle slightly larger in diameter than the globe representing the earth. This circle is divided to represent an hour circle.

The whole apparatus is fitted up as shown in Fig. 1.

#### To show High Tides and Low Tides.

Place C in one of the holes in the circumference of the large circle so that the elliptical part is round the globe A. It will be seen that high tide occurs when a place comes directly under the moon, and that low tide occurs when that place and the moon make a right angle at the centre of the earth.

The hour circle shows approximately the time which

elapses between high tide at a place and low tide at the same place. If a chalk mark is made on the globe representing the earth, and this globe is rotated, the variation of the height of the tide during the day can be shown.

This variation supposes that the moon is not in motion,

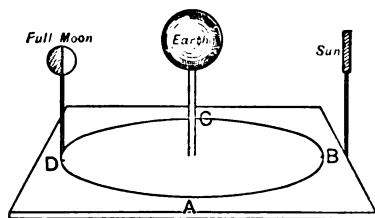


FIG. 2.

but a more correct approximation can be got by dividing the part of the circumference between two of the holes into twenty-four equal parts and shifting the globe C one small division each hour the globe A is rotated through.

In Fig. 3 a curve is shown giving a graphical representation of the change in the height of the tide from hour to hour. The height at any time is got by measuring

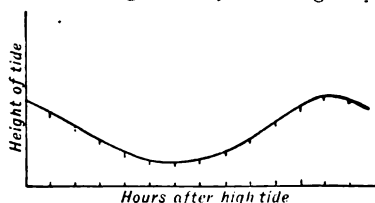
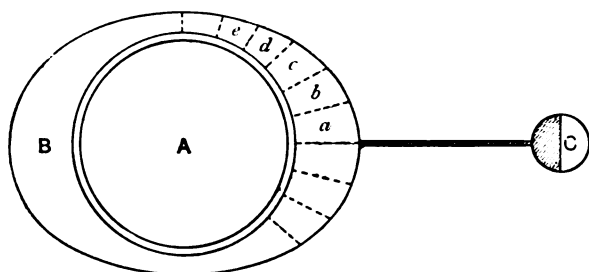


FIG. 3.



Plan.

the depth of the elliptical part along the radius at that hour; e.g., along *a*, *b*, *c*, *d*, &c.

*To show the Reason for the Difference of the Time of High Tide at a Place from Day to Day and to find the Difference in Hours.*

Fix up the apparatus as previously done, and make a chalk mark on the globe A directly under the globe C.

Note the reading on the hour circle opposite the mark, and then rotate the globe A once on its axis. This will take a day in reality, so that we must place the globe C in the hole further to the east. Now it will be seen that the globe A will have to turn round still further before it will be high tide at the place again.

If we read this distance in time we get the difference in time of high tide at the place from the time of the previous day.

As there are two high tides each day, this difference in time halved will give the difference between the time of one high tide and the next high tide.

This can be shown more clearly by shifting the globe C one half division at each half rotation of A and reading the distance to be travelled through on the time circle as before.

### To show Phases of the Moon.

Discard the elliptical part, and at one edge of the drawing-board place a disc to represent the sun (Fig. 2). Fix C in the hole opposite the centre of this edge, and turn the white side towards the disc. This represents the condition of new moon. If the board is turned round so that the globe A is nearest the class, the pupils will see that at this time the dark side of C is turned towards the earth. By placing the globe C at M, N, O the first quarter, full, and third quarter conditions can also be shown. Intermediate conditions can be shown by placing C at any of the holes round the circumference of the large circle, and the difference in the shape of the moon during the month demonstrated.

The relation between the phases of the moon and spring and neap tides can be pointed out at the same time.

J. M. C. WILSON.

Dollar Institution, Dollar, N.B.

### Use of the Camera in Teaching Light.

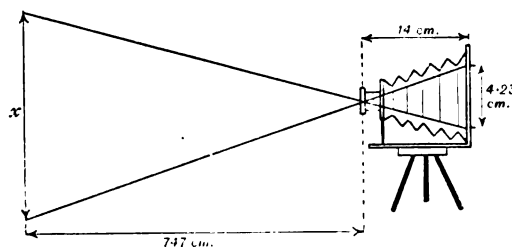
I FIND the following method of showing the ratio

Linear measurement of image = distance of image from lens

Linear measurement of object = distance of object from lens

interests a boy much more than the ordinary dark-room method, and, moreover, opens up other interesting outdoor practical work which cannot help but be a pleasure to the experimenter.

Two narrow strips of mm. paper are required. These are stuck on the ground glass of the camera, one vertically and the other horizontally. The object is focussed on the ground plate (so as to coincide with the strip of graduated paper) in the ordinary way. The following sketch and example (worked out practically by one of the boys) will serve to show the method:



$$\frac{4.25}{x} = \frac{14}{747} \quad (x = \text{height of a window}),$$

from which  $x = 226.7$  cm.

By direct measurement the window was found to be 226.5 cm.

E. T. BUCKNELL.

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### A Simple Ozone Apparatus.

A GLASS tube 30 cm. long and from 12 to 15 mm. wide is coated on the outside with tin foil. Each end of the tube is fitted with corks (ordinary, not rubber); one cork carries a glass tube and a rusty piece of iron—a knitting-needle does very well; the other cork carries a glass tube only. The foil is connected with one terminal of a Ruhmkorff coil, and the knitting-needle to the other. Air which has bubbled through water is passed through the tube while the electric discharge is passing, and the air which escapes is considerably ozonised, and the action on potassium iodide and mercury can easily be shown.

The apparatus was suggested to me by Dr. J. F. Spencer.

W. A. WHITTON.

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### Geography and the English Lesson.

THE literature of travel and exploration which can now be had so cheaply is doubtless finding its way more or less into school libraries, and it therefore becomes the business of the teacher of geography to turn the reading of his pupils constantly in this direction until the travel instinct has taken thorough hold of them; for there was never a true geographer yet but had the travel instinct and longed to feel the strange joy of seeing new lands rising athwart the skyline, and to experience the subtle thrill of alien peoples and climates. Needless to say, all such reading must be done with an ever-open atlas, which is best placed in such a way that the reader always has the open road before him, and sees things in their true relative positions.

Nor is it always the geographical sense alone that is quickened by such reading. In "Hakluyt's Voyages," to mention but one of the many cheap books of travel now to be had, we have a meeting-ground for geography, history, and literature, for the whole compilation is a splendid "prose epic," in Froude's phrase, on the theme of geographical discovery; the historical imagination is exercised in the effort to realise the daily life and routine of these sturdy seamen, while the vigorous English and unaffectedly fine phrasing of many passages is a delight to the literary ear.

Few writers, again, have had more of the literary sense, travel instinct, and geographical bent combined than R. L. Stevenson. The boy who ate his porridge "with milk, and explained it to be a country suffering gradual inundation," whose imagination took flight with the trains that rolled out of Waverley Station, and who, years later, affirmed that charts were "of all books the least wearisome to read and the richest in matter," was never at a loss in describing the journeyings of his *Wanderjahre*. The same pen that could depict so vividly the scenery of the home country was no less successful in "Across the Plains," "Vailima Letters," or "In the South Seas," where the wonderful description of the approach to the Marquesas and various imaginative passages about the trade wind are things to be remembered.

If we look for the secret of this kind of writing we shall see that much of it lies in the happy choice of simile and metaphor. All the best writers of travels have realised this. Writers on geography are coming to realise it too. Not a little of the charm of Mr. Mackinder's "Britain and the British Seas" is due to his facility in vivid figurative expression. Our pupils should be led to notice these points, and, unconsciously, their own powers of vivid description will develop. Essays descriptive of scenery and routes can often be set as subjects for composition, and even so humble a geographical task as the description, from a map, of a country's coastline, or its river system, or its orography, may become a thing of no small literary merit.

Often, no doubt, one or other of these books of travel or exploration may form part of the work in literature; but even when this is not the case, it is possible, more often than not, to find occasions when the atlas may be used. And to the class it should not seem strange, but the most natural thing in the world, that Marmion's route, for example, should be traced on the orographical map. To read such a poem, again, as "The Lord of the Isles" side by side with Bartholomew's reduced Ordnance sheets or the "Touring Atlas of the British Isles," engraved by the same firm, is quite a thrilling experience

to anyone who has something of the geographic sense. The taste for cartographic forms and symbols, for definite ideas of space and position, is satisfied; and doing this need in no way detract from the literary appeal. To use the map in these cases should be as spontaneous a process as looking up a historical allusion, untying a metrical knot, or reading an editor's note.

A book useful enough for the brightening of geography lessons is of the kind known as the descriptive geography. Here are extracts from travellers' accounts and other sources of information, all of which help to give the learner a better picture of the full-bodied life of places and to create in him, it may be, some real feeling for what Wordsworth, one of the most topographical of poets, calls "the affections and the spirit of the place." Wordsworth's own mountainous lakeland is peculiarly rich in its associations with literature. The "Guide to the Lakes," Dorothy Wordsworth's Journals, De Quincey's "Reminiscences of the Lake Poets," and sundry fragments of Coleridge form a curious web woven of topography, poetry, and the human aspect of geography.

Poetry figures rarely, if at all, in the descriptive geography, which is rather strange, for few things are likely so to impress one with the grandeur of the passing of Gibraltar as Browning's "Home Thoughts from the Sea," or help so much to visualise the Plain of Lombardy as Shelley's "Lines written among the Euganean Hills."

To sum up, the things to be encouraged are:

- (1) Deeper immersion in the literature of travel.
- (2) Cultivation of a good descriptive style.
- (3) Alertness of the geographic sense even when reading books not professedly geographical.
- (4) Free employment of descriptive extracts (both prose and poetry).

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### Dangers of Our Modern Educational Methods.

It is not methods that are really dangerous, but teachers. Most methods (perhaps all) are good in the hands of a clever teacher, who will surely see that the children work for themselves, who knows, too, that interest means work, effort, and the gallant tackling of difficulties. Surely in every school wise teachers adopt Miss Wallace's method (*THE SCHOOL WORLD*, December, 1910, p. 479) of studying some portion of history—and let children read for themselves. The schoolroom is not the lecture hall. I thought we had discovered that long ago. There are perhaps three stages in the history of teaching.

(1) Children learned by heart lists of names, dates, &c., and the teacher heard them.

(2) Teachers learned lessons and the children heard them, or, to quote Miss Wallace, "Lessons are so thoroughly worked out and systematised that the pupil has nothing to do but assimilate what is presented to him in a very agreeable and palatable form." (Here I should like to know the child's opinion.)

(3) Children are encouraged to find out and to work for themselves, and are expected to know fewer facts. Whenever possible, the children are the doers. Miss Wallace thinks we are still at stage (2). Examination results would be better if we were at stage (1), for that is the quickest way of imparting information. Children are happiest at stage (3). But what about grit and backbone? Can that be developed by stage (1)?

Whatever method we adopt, it is comparatively easy to teach History, English, &c.; but morality is another matter. All the effort we make children put forth, all the drudgery we make them perform, will not necessarily

develop in them a sense of right or wrong; it will not give backbone to those who are without it. It is one of the biggest problems of the present day—how to teach morality.

Children with little moral sense have often a certain kind of intellect in which words take root, but into which the sense of right or wrong cannot penetrate—learning by heart is no hardship to them. They too often show plenty of grit in tackling new difficulties of the intellect that a child who is morally superior will shirk. Children of ordinary intellect, but mentally lazy, also like learning by heart, and would rather con the same words over and over again than follow a lesson given by a teacher. (I think we do not often realise the effort a child makes in sitting still and following our words. We think because we are talking and the children listening that we only are working.)

I do not quite know what Miss Wallace means by grit and backbone; we have, of course, to distinguish between intellectual grit and moral grit; it is fairly easy to develop the first, far more difficult to develop the second, because, as Sir Oliver Lodge wisely said the other day, "We have to do right because we *will*, not because we *must*."

We are solving no difficulties by going back to old methods; the future lies in the hands of those who study children—who understand, or try to understand, the child's mind. We do not want specialists *only* in geography or science or history, &c., but specialists in teaching; then we cannot have what Miss Wallace deplures, "over-teaching," and subjects and methods will be kept in their right place.

The careful observation of child life that is now going on, the serious thought and study given to the period of adolescence, are extremely valuable. We realise that the absence of grit, the listlessness of the girl of seventeen, is most often due to overwork (the greater part of our work in schools is still learning by heart—think of the facts in history, geography, science, classics, modern languages, that must be remembered); that the idler at school may often be the best fitted for life; that children come to us generally full of energy, wonder, love of work, happiness, trust, and our business is not to wear these qualities out, but to preserve them—to preserve the child. "There is always, or nearly always, a poet locked up in the heart of a child. Well, somewhere between childhood and manhood some brigand or (what is worse) some dull and commonplace person turns the poet out of the heart that had housed him." If we pin too much faith to facts and drudgery this is what our schools do—this is what we do if we talk too much or make children learn too much. Miss Wallace thinks we ought to demand more effort from our pupils (as though this were the keynote of education). We ought rather to economise the efforts and energy of the child; otherwise as she goes up the school she gets more and more worn out and listless, and leaves school unfit for the battle of life—without backbone.

Modern scientific methods are, or should be, based upon accurate investigation of child life (I mean child to include girls up to the age of seventeen). If we are always giving the elaborate lessons Miss Wallace thinks teachers are giving we know nothing about children, and had better go to colleges and universities; if "we shirk dry facts and devote ourselves to the more interesting reasoning connected with them" we do not understand children. Children like facts and dates and things we think they do not (it is dangerous work, however, to generalise about children); reasoning about facts, though perhaps interesting to us, is more difficult and dull to them, and

involves more effort on their part than Miss Wallace's "dry facts," and therefore should give them more backbone.

To sum up. I thought the results of our modern methods and investigations were: (1) That we do not demand more effort than the child can or ought to give, so that in the future we hope to avoid that falling off in energy, so noticeable as a girl goes up the school, which causes her to be condemned as backboneless; it means adjusting carefully the amount of work to be done by the child at different periods of her life, and looking at work and effort from the child's point of view, so that we do not rashly talk of making things easy or difficult.

(2) That we realise children are not always physically fit, and that mental and moral grit depends largely upon health. A healthy girl is more fit for the world than one who has sacrificed leisure hours to getting up the geography of Ireland.

(3) That listening to lessons is work, and not necessarily very educational; that "facts alone" are of no educational value; that the standard of knowledge is getting higher every day, and that it is a healthy sign if the children are below it; that examiners' reports, although valuable, have not often much to do with the teaching of children; *that children are more important than the subjects taught*; that teachers are more important than methods; that it is fatally easy to overwork girls; that mental training is not moral training; that we still want (as someone wisely said) "more romance and more practical work in our schools."

RUBY K. POLKINGHORNE.

County Secondary School, Stockwell.

#### Short Plays for Girls' Schools.

Will any of the readers of THE SCHOOL WORLD be kind enough to recommend in its columns some short plays for use at entertainments in a girls' school? Musical plays and what a reviewer calls "amorous plays" are not desired.

ELEANOR ROBINSON.

S. John, Canada.

[Our correspondent should consult an article by Miss Fanny Johnson in THE SCHOOL WORLD, March, 1909 (vol. xi., p. 100), where an exhaustive list of plays suitable for her purpose will be found. Possibly some of our readers may be able to supplement this information.—EDS.]

## The School World.

A Monthly Magazine of Educational Work and Progress.

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# The School World

A Monthly Magazine of Educational Work and Progress.

NO. 146.

FEBRUARY, 1911.

SIXPENCE.

## CURRICULUM OF TRAINING COLLEGES.

ON January 18th, 1909, a conference of twenty persons selected by the London County Council began their meetings under the chairmanship of Prof. John Adams. The membership included representatives from training colleges, secondary and elementary schools, technical institutes, the L.C.C. Inspectorate of Schools, and the University of London. The conference lasted for eighteen months, held twenty-one meetings, and prepared a report which has just been published by the London County Council. The reference to the conference runs:

To consider and report as to the methods by which the curriculum of the training colleges can be improved, and can be brought more into touch with the other branches of the Council's educational work.

The report is in no way revolutionary; but though it is commendably brief it gives evidence of very thorough investigation. The conference confined itself to the consideration of the training of teachers for elementary schools, and one of the first questions it set itself was: What standard of general education should be demanded of a certificated teacher? It is doubtful whether the answer will satisfy the more ambitious of the teachers in elementary schools.

While we should like to see every certificated teacher with a first degree from some university, we recognise that under the present economic conditions this is an unattainable ideal. . . . As a minimum requirement the teacher ought to have such a knowledge of all the ordinary subjects included in the elementary-school curriculum as would enable him to teach those subjects satisfactorily, and, in addition, he ought to have in the case of three (or four) culture subjects a knowledge equivalent at least to the standard of the Intermediate Examination for Bachelor of Arts or Science of the University of London.

The conference is careful to state its opinion that "every encouragement to obtain a university education also [*i.e.*, in addition to the professional training at the college] should be given to students who are able to profit by it."

While admitting that in the case of graduates it is an excellent plan to supply one year's complete training in purely professional subjects, because such students are mature enough to profit by such a course, the conference is

convinced that as a general rule the academic and the professional training of teachers should not be separated . . . in the case of students who are to have only two years of training following upon a secondary-school course we are convinced that it is a mistake to limit the professional work to the final year.

This recommendation involves the rejection of a plan proposed to the conference in which the student teacher was to have *completed* the course at a good secondary school, and thereafter at the age of eighteen proceeded to a year's practical work in an elementary school, following this with *one* year at purely professional work at the training college. This would leave the young student ready to take up the work of a certificated teacher at the same age as at present, *i.e.*, twenty. One would have thought that this scheme would recommend itself to the secondary-school teachers concerned, but among the reasons given for its rejection is the remark that the secondary-school teachers do not regard with favour the proposed change. It appears from the report that the student teachers are far from having a fixed status with regard to their attainments in relation to the ordinary pupils at secondary schools. In some cases they are regarded as inferior to pupils of the same age, and therefore form a drag on the upper classes, whose teachers look upon them with no favour. In other schools, on the contrary, it is felt that the student teachers, being a specially picked body of young people, reach a higher standard than their fellows of the same age, and so make matters difficult for the ordinary pupils in the higher forms. On this remarkable difference of estimate the report comments:

The two points of view appear to be inconsistent, but when it is remembered how different the conditions are in different secondary schools, it will be readily admitted that both contentions may be right.

It may well be that in a good secondary school where most of the pupils in the upper forms are being prepared for the university and for professional life, the student teachers may find themselves among the less promising, while in a school in which the majority of the pupils are of the elementary-school type and leave at an early age, the student teachers may rank at the top.

In any case the conference will have none of this recommendation, for the reason that the train-

ing college has to prepare its students not merely to teach, but to live, and a year is too short for this purpose. Further, if students came for one year only, there would be no possibility of developing a college tradition, and a great part of the training at college is gained through the influence of the senior students.

Actual experience proves that a two-year course is not only twice as good as a one-year course, in the way of character building, but many times as good. The increased gain cannot be measured by the mere number of months. Two years is the minimum for profitable work.

An interesting point is made when it is contended that even if a training-college student knows only exactly the same amount of matter as the pupil who has just finished a course at a good secondary school, the student knows it in a different way. The secondary-school teacher may be inclined to accept this with a grin, and a mental reservation; but there is force in the accompanying argument that in the process of learning how to teach, the student in training does get to know his subjects in a very thorough way. He views his subjects from a new point of view, and thus gets a wider and clearer knowledge of them. The concurrent study of subjects and methods improves the results in both.

Among secondary-school teachers there was, for a time at any rate, an impression that the student-teacher system was breaking down. It would appear that they are getting less pessimistic on the subject, and in any case the conference seems to be anxious to give the system a chance. It believes

that the present system adopted by the Council in regard to the training of student teachers before admission to the training college should be continued. It has not yet had time to bring out its possibilities, and it is certainly worthy of a longer trial.

The danger of a divided control is recognised. Under the present system there are three persons to whom the student teacher owes allegiance: the head teacher of the secondary school in which he was educated, the head teacher of the elementary school to which he is attached, and the supervisor who represents the training college to which he proposes to go. The conference is inclined to believe that there are actually only two authorities, for the supervisor and the head teacher of the elementary school really represent only one interest, and the report tells us that "the chance of conflict between them is very remote." It is significantly maintained that the elementary-school teachers and the supervisors have as much as they can do in getting the broad general principles of teaching instilled into the young teachers, without wandering afield into debatable matters. In deference to the strongly expressed views of the elementary-school teachers it is recommended that in no case should the student teacher spend less than eight half-days in the elementary school to which he is attached. Then it is recommended that the ten or twelve

half-days in the year that are required by the training college to give hints and suggestions for practical work should be in addition to the ten half-days a week that the regulations at present demand. If the Board of Education cannot be persuaded to permit this slight addition to the work of the student teacher, then it is recommended that the time required should be deducted from the two half-days at the secondary school and not from the eight half-days at the elementary. It is not in human nature for secondary-school teachers to accept this application of the principle "from him that hath not shall be taken away even that which he hath." Less objectionable but still open to question is the recommendation:

We think that one of these two half-days should in every case be devoted to what may be called recreative subjects, not necessarily confined to games, but including, at the option of the secondary-school authorities, such subjects as singing, school excursions, cookery, and interesting handwork of all kinds.

The following resolution was passed by the conference *nem. con.*:

That, while approving of the principle that student teachers should not sit for examinations, we are of opinion that the stringency of the regulations should be relaxed in exceptional cases where the headmaster or headmistress and the inspectors concerned are agreed that it is advantageous for a student teacher to enter for a particular examination.

Most secondary-school teachers will support this view. Many hardships have arisen in the case of really good students who have been placed at a great disadvantage because they were not allowed freedom of competition with their peers. No teacher should ever oppose greater freedom, even if it involves a certain responsibility.

An interesting difference of opinion appears to have arisen in connection with the subjects that should be obligatory in a student's course of study before entering a training college. The list runs: (1) English; (2) history; (3) geography; (4) elementary mathematics, including arithmetic; (5) manual work, including housecraft and needlework for girls; (6) elementary science; (7) drawing and modelling; (8) music, except in cases of musical disability; (9) physical training. So far there appears to have been unanimity. The trouble arose about two additional subjects, one of which is to be offered by all students. The two alternatives are: (1) a foreign language; (2) any of the above subjects taken with a higher standard. Many of the members regarded another language besides the mother tongue as essential to the proper equipment of the teacher. Others, while duly recognising the educational value of a second language, thought that it would be unfair to demand this qualification in every case, since this might exclude very capable persons who are quite fit to be prepared for some of the newer and less bookish forms of teaching. Those who were in favour of the second language appear to have fallen in with the recommendation, on the ground that,

by reason of its intrinsic value, and from the nature of the curriculum of the secondary schools in which the candidates are being prepared, a second language will be chosen in the vast majority of cases.

With regard to the standard to be reached in the subjects dealt with, it is recommended that it should not exceed that of the Matriculation examination of the University of London. Some of the members held out for a higher standard in the subject of English, but by a majority of seven to four it was resolved to recommend the same standard in all the subjects.

As may be gathered from the suggestion that students in training should be expected to have a fairly advanced knowledge of three (or four) subjects, the conference rather favours a limited amount of specialisation even within the curriculum of the primary course. "Teachers should be encouraged to specialise in subjects for which they have a marked liking, or in which they show exceptional ability." The conference is fully aware of the difficulties of organisation and the dissipation of energy involved in the working of a school by specialists, but the members believe that there is not the same temptation in elementary schools as in secondary to go to excess in specialisation.

The relative merits of the residential and the day training college have been considered, and the balance of evidence submitted has been, on the whole, in favour of the residential college, under which term is included the day college that has adequate hostel accommodation. But the conference does not think it wise to recommend the exclusive adoption of the residential system. Within the great cities, and especially in London, there is room for the day college as well, and, besides, it seems undesirable to limit all our colleges to one type.

The report informs us that in drawing up the proposed curriculum for training colleges the conference gave consideration to the question of religious knowledge, but decided that this matter did not come within the scope of its reference. This decision was probably wise in the circumstances, but it is satisfactory to know that the subject was not ignored.

## THE RELATION OF PHONETICS TO THE TEACHING OF ENGLISH AND MODERN LANGUAGES.<sup>1</sup>

By Prof. WALTER RIPPMAUN, M.A.

IT may safely be maintained that the science of phonetics is English in its origins, and in its history the names of Bell and Ellis will always occupy an honoured place. Their labours have been worthily continued by Sweet, of whose European reputation we are justly proud, and by Lloyd, who, after doing splendid work, allowed the study of Esperanto to absorb him in the last years of his life, the tragic end of which we still deplore. If, however, we consider the application

of phonetics to the needs of teaching in schools, we think in the first place of Germany, and the name of Viëtor comes at once to our lips. The development of Germany since the war of 1870 rendered a more living study of modern languages imperative, and it was Viëtor who most urgently called for a revision of the methods that had been in vogue. He demanded that the spoken language should receive due attention, and his demand has proved stimulating and fruitful to a remarkable degree. The study of speech sounds has opened fresh fields for the philologist and shed light on many phenomena of language that had been obscure. But we are here concerned with the teaching in schools; and it is here, above all, that the attention paid to phonetics has led to a very beneficial change.

Such a change was needed. The pronunciation had not been taught in any systematic fashion. Teachers, whether foreign or native, had as a rule relied on imitation, with more or less satisfactory results. A certain degree of approximation to the speech of the teacher was attained, and it was generally considered that no more was attainable. The pupils who in those days usually learnt Latin as the first foreign language pronounced it with English speech sounds; what more natural than that they should adopt the same attitude in pronouncing a modern language? If they were allowed to say Latin *rosa* with a diphthong in the first syllable, why not do the same in pronouncing the French *rose* or the German *Rose*?

The leaders of the reform in language teaching have adduced weighty reasons why the first foreign language learnt should be a modern, not an ancient one. They maintain that if a foreign language is pronounced, it should be pronounced as correctly as possible, and that this necessitates clear ideas about the nature of the foreign sounds and persevering repetition of them. This necessity is one of several arguments which they urge in favour of reducing the use of the mother tongue to a minimum in all but the most advanced stages of modern language teaching in schools.

The study of phonetics made it increasingly evident that the conventional spelling interfered seriously with the acquisition of the foreign pronunciation. A simple phonetic alphabet was therefore adopted, which makes it possible to deal with the sounds of the foreign language and with their conventional representation no longer at the same time, but separately. Those who have had no experience in the matter not unnaturally suggest that the use of the phonetic alphabet is likely to interfere with the conventional spelling; in practice that is not found to be the case.

It is now some twelve years since phonetics first appeared in an English school book for the teaching of a foreign language. For a time progress was somewhat slow; the reform movement in England was in its infancy, and until the importance of the spoken language received general recognition it was not likely that phonetics would meet with due consideration. At the present day we may contemplate with satisfaction the advance

<sup>1</sup> A paper read at the North of England Education Conference, Liverpool, on January 6th.

that has been made. Confining our attention to phonetics we may say that in most schools where modern languages are taken seriously, the teachers no longer rely on imitation, but make a more or less extensive use of phonetics. Some, it is true, are still shy of employing the phonetic transcription or of letting their pupils use it; but this, too, is becoming more and more common. Phonetics would be still more widely used if teachers had more opportunities of judging the results; a visit to certain schools where phonetics have for some time been applied to the modern language teaching would make many converts.

The movement is being aided by several changes in our educational habits. Thus native teachers are now preferred to foreign teachers, as has long been the case in France and Germany; and the native teacher is more likely to understand the difficulties of the English child than the foreigner, and to resort to the aid of phonetics in order to overcome them. Then, again, our classical friends are setting their house in order, and a great improvement has been effected in the teaching of Latin pronunciation. Lastly, the teachers of the mother tongue have made their voice heard; and while rightly insisting on the need for better literary training they do not overlook the linguistic and, in particular, the phonetic aspects of their work.

It may be suggested that these have long been the concern of the teachers of elocution. The time available makes it impossible to refer in detail to the methods which these have adopted, but, speaking generally, it may be said that they have given attention to the pronunciation as they think it ought to be rather than to the pronunciation as it is. With rare exceptions, they have approached the problem with insufficient knowledge of the facts, and with an altogether inadequate linguistic equipment, and their views are too often based on some vague tradition of what was, or represent a transference to the speaking voice of what is true rather of the singing voice. Of far greater value has been the work done by Miss Dale in connection with the teaching of English reading. With great conscientiousness and unusual insight into the child mind she has devised a method by which, without the use of any special symbols, true ideas as to the relation between the spoken and the written language are inculcated.

The modern language teacher nowadays is well aware what advantage he can derive in his teaching from a knowledge of the speech sounds of the foreign language, but he is learning to recognise that this does not suffice. In order to make an effective comparison he must know the speech sounds of the mother tongue as well, and not only the general features of standard English speech, but the special tendencies which appear in the speech of his pupils. As a result the modern language teacher is beginning to demand that the teacher of English should do his share of the work. It happens too often that a pupil, who has been taught by Miss Dale's method, passes through an intermediate stage before beginning

the first foreign language, during which the study of speech sounds is in abeyance or actually wrong ideas are implanted; or that pupils come to the modern language teacher who have never had any systematic instruction in speech sounds at all, and therefore bring to him only vague and often faulty conceptions, ill-trained organs of speech, bad habits of breathing, and a wholly unpractised ear. The modern language teacher has just cause for complaint, and demands a remedy. Such a remedy is found in postponing the beginning of the first foreign language and devoting the time set free to English phonetics and to broad-minded instruction in the main facts of grammar, by which also the teacher of English may fairly be expected to prepare the way for the teacher of modern languages.

Increased attention to phonetics in the teaching of the mother tongue will, however, by no means benefit the modern language teacher only. It will naturally be accompanied by sound drill and by breathing exercises, which will lead to better enunciation, more distinct speech, and a keener appreciation of the beauty of the spoken language. It will result in greater suppleness of the organs of speech and more acute discrimination by the ear. It will counteract the hampering influence of our wretched spelling and serve to weaken the force of associations, which alone explains the almost idolatrous worship of what is probably the most inadequate and inconsistent representation of any language since the world began. It will thus render possible the intelligent consideration of the question of spelling reform (by no means the same thing as phonetic spelling), the adoption of which in its turn will set free a year at least of the short time during which the mass of the nation goes to school, make the learning of reading a reasonable process instead of mere memorising, check the tendency to rapid change in our speech and help to bring about the general acceptance of a standard speech in English and of English as the language of the world.

To ensure clear speech in the mother tongue, to impart a correct pronunciation of foreign languages, to emphasise the importance of the spoken language—which is essential for all true language study—these are the tasks which the school phonetician has set himself. The advance made and the results obtained in recent years inspire him with the confident belief that his efforts are not vain, and embolden him to ask for these efforts the sympathetic and earnest consideration of all who are interested in the educational progress of our country.

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*A History of England.* By A. E. McKillop. x+301 pp. (Bell.) 2s.—This is intended as a historical reader in the higher standards of elementary schools or as a history for the middle forms of secondary schools. There are many good illustrations of various kinds, genealogical tables, and lists of events. The story is well told, but is not always up-to-date; e.g., Edward VI. is still a founder of grammar schools, and Wat Tyler's daughter is still "insulted."

THE EDUCATIONAL LADDER.<sup>1</sup>

By H. V. WEISSE, B.A.

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THE metaphor of a ladder as applied to an educational system has always seemed to me somewhat unsatisfactory. It presupposes in any case a firm foundation at the bottom, as well as a definite occupation somewhere near the top, at some firm point of support. Again, the ladder that reaches up to the top of a wall is not useful for working half-way up; it does not, at that point, come sufficiently near to the job. Better by far stand on a chair.

Perhaps I might venture to suggest a different image. Let us consider some great didactic drama of life as being played on some great stage. It is witnessed from the stalls and dress circle, the upper circle and the gallery, by a crowd of young persons. Some are born to the stalls and boxes, from which they will never take the one short step across the footlights, to become themselves active makers of the history that is unfolding itself. To each rank they are born, further and further off, to a more and more remote view of the play. Some are without ambition, content to lead the sixpenny or two-shilling life to which they are born, content to keep their distance. But others are of different kidney. They are not content; their fathers, who have had to be content for themselves, are not content for them. It is with those born to the back of the gallery, yet born with ambitions and ideals, with the desire to win their way down into the arena step by step, learning in each rank as much from a nearer view as from contact with those already there, that we have to do in considering this problem, the problem too often and too rashly stated as "giving the same chance to all."

The managers are ready enough to afford every opportunity for transfers. All who care to pay, who can pay, for the transfer ticket are welcome to move on. With that phase we are not very directly concerned, except in so far as it is well to see that, before leaving each rank, the person to be transferred should have learnt enough there to enable him to profit by the transfer.

But, like the wise managers that they are, the directors have an eye on quite another type of transfer, the type of those whose transfer will benefit the whole and who are likely to go on from rank to rank, until they become profitable members of the company. They must not be lost, or allowed to stay gnawing their hearts out, as near as they can get for want of sixpence. Consequently there are those whose duty it is to watch the gallery all the time, and mark the hungry mind and noble heart straining for a nearer view, a wider range of thought, a freer atmosphere.

From act to act, as the never-ending drama unfolds itself, these test all such as seem to call, to see whether the cry is from the heart or from the lips. They must give free opportunity to the

friends of the timid and the modest to speak for them, lest such be overlooked and the worthiest lost.

But the most well-meant selection will not be the best, unless it regards not only the finding of the best in its own rank, but the finding of the most acceptable, because the most fitted, to the rank to which it is to be transferred. Poverty, the fear of contrasting painfully with the new surroundings, these should have no weight at all. Where these seem to resist the transfer, which is, after all, for the good of the whole, they must be met—adequately met to the extent of extinction.

To complete the image we must imagine that from each tier there are open passages leading to "Behind the Scenes," and by these all those who are unfit for further advancement are drawn off to various occupations connected with the work of the life-drama. The great point is that on every plane there is some work for those who are fit for any at all, and that the sinful thing is to waste on a meaner plane powers capable of working on a more advanced. A really effective system promotes the happiness of all and the perfection of the drama; to say nothing of the peace of those whose work is done.

A great effort is everywhere being made to secure the prevention of sinful waste; but in that effort it is just possible that evils may arise against which it is very necessary to guard ourselves.

The greatest of these evils is the one resulting from an error in the choice of those promoted, by any violation of purely natural happenings, from one tier to another. There are numbers of children every year, all over England, who are taken out of their natural element, artificially acclimatised in a new one, artificially and unnaturally made to score some "success," and at the latter end unfitted for the greater things and spoiled for the humbler. They are like the giant blossoms in a flower show, got by removing every living bud but one or two. They are fit only to live in an artificial atmosphere, and, if turned out into the natural conditions of life, they perish.

I first indicated the danger of missed opportunities, and now I have suggested the danger arising from a physical inability to stand the strain of making use of opportunities given. There yet remains the danger of giving a totally wrong kind of opportunity, owing to an original blunder in the estimate of the sufferer's capacity and consequent switching him on to the wrong line of development. Who does not know the cant of giving everyone a fair and a like chance? And who is not familiar with the tragedy of the black coat? The boy who would have made an artificer of ability, originality and character, lost in the needy gentility of some more or less questionable service. The girl, who would have been the ideal mate for some self-respecting worker at a craft if frankly trained in all domestic virtues and accomplishments, tapping her life away in the offices of some patent remedy. These seem to me to be the fruits of indiscriminate and ill-judged opportunities. And all opportunities are to be the more jealously watched and

<sup>1</sup> From a paper read at the North of England Education Conference, Liverpool, on January 6th.

guaranteed, when we see the Education Authorities seriously concerning themselves with the proposal to teach, in such schools as offer scholarships and free places to elementary-school children, subjects like indexing and typewriting. They do not seem to see that this is only one more attempt to get into the service of commercial enterprises mere children, for whom the schools shall have already done much of what an apprenticeship ought to do, and who will, for the wretched, customary £100 in the first five years, do work which ought to be done by decently paid employees, adults who have any necessary and real apprenticeship behind them.

I now proceed to the consideration of some features of the system which we have to recognise as the existing educational ladder. In the first place, I find a tendency for the foundations to become more and more unsound. As one example of this I find children sent into secondary schools, such children as pay and such as do not pay, who are absolutely ignorant of grammatical syntax or accidence. The children come to secondary schools at the age of twelve to fourteen, later if the schools will take them, knowing all sorts of things, some of them excellently well taught; but they do not come knowing the meaning of the words "transitive verb." Also they come from the same high standard of different elementary schools, and there is no sort of uniformity either in subjects learnt or standards reached. Personally I should be grateful if all children likely to come to a secondary school at the age of 12 or 12½ were solidly grounded in arithmetic and English, including spelling and some very simple scheme of grammar.

Heaven forbid that I should even appear to recommend that these should be the only subjects taught in our primary schools. By all means let the children learn on the very widest possible scheme everything that can be profitably worked into their school curriculum. By all means let the men and women who teach them, and for whose untiring devotion and patience I have an ever-growing respect, have the joy of teaching them all they may, and at least some one thing to live for, besides the necessary things they will have to live by. But nothing should displace the training of every child in the faculty of accurate, however simple, calculation, and the knowledge of its own language as a means of accurate expression.

The foundations of the ladder I then consider distinctly wobbly; but we may as well look at the methods of promotion up the first step. All the children who are to be sent up, taught and maintained at the public cost as scholarship-holders, boys and girls from very widely differing types of elementary schools, as well as some from secondary schools, without regard to the probable limitations in their choice of a future career, are selected on one and the same examination. They are first recommended by those who have had to teach them; they are next examined by some

official examiner who neither has taught them nor is going to have to teach them; and they are then allowed to go off to any secondary school they may have chosen. The school must take them: it has no voice in saying whether they are the fittest for that school, besides being selected from the best of their late school. In this way a boy may be sent to learn Latin, French, higher mathematics, physics, &c., whose parents fully intend that, near the close of his so financially profitable scholarship time, he shall enter some walk of life for which the training of that school is either eminently unfitted or utterly wasted. On the other hand, the really able boy, the boy who has, by a great effort on the part of his parents, at the age of twelve reached a comparatively high form in a secondary school, dividing his energies between the study of all the subjects of a wide curriculum instead of concentrating them on the absolute minimum required for the scholarship examinations, is thrown out by this very boy.

The trouble arises from the fact that, except for certain efforts in the direction of short-course trade schools, the British secondary school has to do duty for an enormous variety of totally different types of Continental schools. No one in his senses in Germany, a country from which there is undoubtedly still a good deal to learn in this matter, would dream of using one and the same examination to select children from the primary schools and secondary junior schools for State-aided or for totally unaided transference to (a) die Handelschule; (b) die Realschule; (c) das Realgymnasium; (d) das Gymnasium. That is to say: the commercial school, the modern school without Latin, the modern school with Latin, and the full classical high school. Each type of school would be required to decide the fitness of any applicant for admission to its course of study, just as any university claims to decide the fitness of any student for matriculation. The question of ability to pay would be a later consideration and a less important one. The aim of the child in life, the willingness of the parents to go so and so far in enabling it to work towards that aim, the mental calibre of the child; these would be the determining factors.

In many ways we are more generous; there is more survival in our public bodies of the gorgeous, but, unfortunately, dwindling spirit of private charity in educational endowment. But I believe that we go too far and not far enough. I can conceive of no nobler ideal than that every poor child of real ability and character should have a fair chance of attending a secondary school of the type best suited to its gifts and natural prospects. I can conceive of no fuller acceptance by a public body of the spirit of wise and ungrudging charity than that the necessitous child should be lifted over the limitations of its poverty, and carried through to such an end as it may reasonably have in view. On the other hand, I can conceive of no more grotesque travesty of the spirit of wise educational endowment than that success or failure, at the age of 12½, in one examination so

conducted, should mean the alternative between the open road through a classical high school to the university, and a job at 3s. a week from the day the child is fourteen. The free place examination is no doubt better, in so far as each school at least selects, from among the children of parents who are willing to do their utmost that their child may have a chance, those who are fittest for its own particular scheme of work. But it is just here that the barrier of poverty is often insurmountable and the poverty worse to bear because of the braver aspirations and the higher decencies of the home.

I would submit that the first transfer would be more fairly effected and would leave a wider choice of future action if the entire scholarship system, as we now know it, were merged in the statutory free place system, and each free place made the subject of reconsideration at the close of each school year. Such yearly reconsideration would, of course, have to include the question of possible changes of school at any point of a child's career. Success and development in one type of school *might* justify a change, just as failure in one type *need not preclude* success in another. The parent should be free to express his wish in the matter, but the principal of the school at which the child has so far been educated should have the right to decline to support any child's candidature for advancement.

I further venture to think that no monetary grants should be made to children of an age when the law requires that they shall be at school somewhere; but that the free place should be a free place in fact, and not in name only. Books, school cap, games, everything should be included. After the age of fourteen, when the child and its home circumstances are well known to the school authorities, no promising child of good character should be allowed to leave school, just because there is a difficulty in keeping the child without the small weekly wage he might then be earning.

In the choice of a secondary or other continuation school each child's primary school principal should guide it, in the light of its character, disposition, and talents, with due consideration of its family circumstances. One boy should clearly try by every safe exertion to win his way into the highest type of school available; another should be urged to content himself with the equivalent of the Realschule, and so on.

Even at the best, any examination held at so early an age is likely to overrate a certain type of specious intellectual facility. It is likely, too, but less likely, to miss some timid or slowly developing children, no doubt. But these risks are not so great in the comparatively small range and more personal character of an examination conducted by each separate secondary school. It would also materially help to lessen the risk of missing the very best, if the children of parents who were willing to send their girl or boy to a secondary school at their own expense could be allowed to sit for scholarships or free places at an examination of a totally different sort at the end of a trial

year. Although I can see that there are practical difficulties in this, I cannot doubt that a few years of practical experience would suggest a solution of the problem.

The length of the average school life expected from a pupil in each type of school would naturally vary, but it would settle itself for each school in a very short time. Whatever the period finally accepted as being arrived at for each school might be, each child should receive some form of certificate if it finally showed at its last school examination that it had passed creditably through the course of study in the school. In my opinion an examination for such a school-leaving certificate should be conducted by the school staff acting conjointly with the representatives of some university or other acknowledged examining body. The value of the leaving certificate from the different types of schools would very soon establish itself, and the certificate itself should open the doors to the university, to some profession not requiring university training, to this or that business or trade, each according to its special requirements.

### EDUCATION IN CITIZENSHIP.<sup>1</sup>

By Miss GERALDINE E. HODGSON, D.Litt.

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IT is quite obvious to anyone who is acquainted with the time-tables of our schools, and the capacities of teachers and scholars, that no addition to the curriculum is desirable or possible. Moreover, citizenship being a state of activity, dependent on an attitude of mind, will, and affections, an attitude itself consequent on the possession of an ideal, is not, I believe, a matter which admits of direct inculcation by a science of its own. I will not enter upon the thorny problem of religious education beyond expressing my own belief that the best foundation for true citizenship is to be found in religion, sincerely believed in—not adopted out of regard for existing convention, or as a means conducive to earning a livelihood.

Putting that aside, I venture to suggest that one of the most powerful, the most effective, the most sure means of training our children to be good citizens is to be found in history, rightly handled. I have often thought that room might be made for more and better teaching of history by the excision of that which I hope it is not offensive to call "trick arithmetic." What difficult things one was asked to do in one's youth in arithmetic! Even now when I am in a train which passes another in a tunnel I experience a shock of remembrance of painful questions in Cambridge "Locals" about the number of seconds taken by two trains in passing each other in a tunnel. And why in a tunnel? Then there were brain-cracking estimates of the advantages of turning one sort of imaginary "stock" into another; and sums which began with tons and hundredweights and somehow perversely metamorphosed themselves into £ s. d.

<sup>1</sup> From a paper read at the North of England Education Conference, Liverpool, on January 7th.



during the course of the calculations. In those particular hours of one's youthful career, life was little better than a nightmare. And, after all, of what use was it? Which of us, average adults, really uses in life more than the four simple and compound rules, a few "weights and measures," and occasional vulgar fractions? If it be urged that this arithmetical worry is "mental training," that desirable process can be effected at least as well, and probably better, by a rightly directed use of history, which calls for moral as well as intellectual judgment, exercises the constructive imagination, and makes demands on taste. Might not the time spent upon hypothetical tons of turnips, whereas in life few of us require turnips by the ton, or upon the number of hours spent by non-existent men in reaping imaginary fields, have been better devoted to learning how a nation comes into being; what virtues are essential in a State, what vices disastrous? I am not asking for a study of "civics," of economics, carefully prepared from some *parti pris*, for any strange artificial amalgam of hygiene, temperance, and carefully assorted morals. I am pleading for a wide, fair, so far as may be true, inclusive presentation of the past, with all its manifold factors—the political exigencies, the social possibilities, the national dangers, the supreme efforts, the great renunciations, the shining valour, the daily monotonous drudgery, the political sagacity, the moral strength, the spiritual illumination, the clash of human will on will; in fact, the slow evolution of the life and character of a great and puissant nation. I am not advocating the use of twisted history, viewed from any particular point of view for the purpose of instilling this, that, or the other virtue, or quality, but for a fair, truthful, and vivid presentation of the great complex drama of the past.

The most obvious difficulty in the way is the fact that such handling undoubtedly demands historians of great width of knowledge, possessing comprehensive grasp, who are at the same time skilled teachers, who can select without falsifying the issue—for the scantiness of time necessitates selection—and who can present their knowledge with that dexterity and tact which carry it to the mind and appreciation of the child with the teacher's exact intention. To ask all that is to ask a very great deal.

To inquire whether the inculcation of citizenship by means of history should be direct, or indirect, is to propound a question to which no all-sufficing answer can be given. The best method of teaching one class is not necessarily the best method of teaching every class. The best method of teaching a class to-day is not necessarily the best method of teaching it to-morrow. Moreover, the method which one teacher can apply successfully may prove a deadly, disastrous tool in the hands of another, who need not, on that account, be a poor teacher. For example, a few people, clerical and lay, can really preach; to them we willingly, nay, anxiously, listen. But even to them we do not wish to listen all the day, every day! Again, there are some who can preach sometimes, and

"on their day" we can listen appreciatively to them. There are others to whom we would never, by choice, listen. This is equally true of children and their pedagogues. I often think that when people inquire after methods of teaching this, that, or the other, one's wisest answer would be that before all things the teacher should discriminate; he should gauge—not hypothetical children nowhere in particular—but the precise children, at the precise moment, in the actual circumstances: in other words, that the most vital of all methods is the unremitting use of that rare quality ironically called common sense. To these children, now, with this particular instance before me, I may even venture to preach: to-morrow, with other children, or with these children (and perhaps myself) in another mood, and perhaps with another example, I had better leave the thing to point its own moral and adorn its own tale.

Yet there is one service which can be rendered in this business of citizenship by every teacher, in every school, no matter what the children's class in society be, or what the subject of the lesson, and more particularly perhaps by women. It has always seemed to me a vain and futile thing to pit men and women, or their supposed virtues, against one another. The thoughtful person will surely perceive that in their essential differences they are complementary, supplementary; and hence that on some sides men can contribute rather more in degree (though not necessarily in kind), and, on others, women, to the general welfare of the community.

But this service, at which I have hinted, I myself believe that women can render conspicuously. "The gods," said Erasmus, "sell us all things for labour." "Labour"! Effort and pain—those surely are the foundation stones on which a great State is built. If we could realise our forebears' sagacity, self-sacrifice, toil, should we sometimes be quite so ready to pull down? Nothing great has ever been built without effort and pain. Now, women worthy of the name, not frivolous busybodies, but ordinary, average women, can endure pain. They can bear it when it is sharp and intense; they can bear it when it is monotonous and gnawing; they can bear, and, I think, better than men can, that still commoner but unavoidable species, which I might call tiresome pain, whether mental or physical. Now, this being so, if women realised that by example in their own lives, far more, probably, than by precept or even guidance, they could teach children confided to them, as parents or teachers, in this most necessary direction, that they could gradually inure others to that essential effort and pain without the endurance of which life is neither noble nor fruitful, the State would gain enormously. They would cut thereby at the root of the insane craving for pleasure at any cost, now common among us; they would help to stamp out the terrible desire, fostered by brainless competitions, which is the root of gambling, viz., the desire, so common, so widespread, to get something, if not actually for nothing, at least for very much less than its cost price.

Undoubtedly, women can bear pain. It is well to recollect that learning, except to a few, is a painful toil. I do not mean to suggest that it is all pain, but I do maintain that it requires patience, self-control, effort, perseverance under failure, the conquest of dulness and monotony, all these to a degree which is always repugnant, in some measure, to quite natural human nature, and which occasionally mounts to the point of actual pain. Acquisition of anything really worth having means sacrifice. Now, a school which habitually trains its scholars never to ask others to do for them that which, with effort, they can do for themselves, never to shirk a disagreeable duty, always to suppress small grumblings about unimportant discomforts, "to make," as the Bishop of Oxford once said, "excuses for others which they would never make for themselves," to do what they are told by lawful authority even if they do not yet "see the sense of it," and at the same time to be alert, intellectually alive—any school which does all that is training children in the most essential duties of citizenship. If it add the supreme lesson—from the State's point of view—of the sacrifice of self-interest for the sake of the manifest interest of the whole body, then children, educated so, will have little difficulty in quitting themselves like men, like women, on the arena of that larger school which we call life. These virtues, so easy to talk about, so hard to acquire, can be inculcated in any lesson, on any subject, because they can be enforced, not by the subject-matter alone or mainly, but emphatically by the judicious handling of the children and the subject, *i.e.*, by bringing the children themselves into the right, the wise, the courageous attitude to their work.

I dwell on this, not because it is at all new, rather because it is old and neglected, because I cannot help seeing that the spirit of the age tends to undue softness, to the deification of pleasure, to the preference for ease over that effort which achieves, to the sacrifice of a great future good for a present comparatively trifling satisfaction. I do not propose to advocate harshness, the abolition of joy, the extinction of wit, I have no taste whatever for a reign of sour virtue could such a state be; but I do desire to protest against the "primrose path" which leads to an abyss perceived, often, too late to be avoided.

One word more. In this age, when nervous diseases abound, when lunacy is increasing and suicide among school boys and girls is not wholly unknown, can anyone refuse serious consideration about the absolute necessity of accustoming our children, in school and out, to bear necessary pain, to endure some hardness, to suffer even injuries patiently, not, of course, at the hands of "authority," but at the hands of their ignorant, or perhaps malicious, equals and inferiors? For these things come in adult life, in the life of every citizen in any community, or, at any rate, they happen to the majority. To take all these hardships away from our children, to encourage them in the delusion that they can sail for ever with a favouring breeze upon a summer sea is but to

cheat them, and that most bitterly; is but to unfit them utterly for the give-and-take of a citizen's life.

Lastly, may I suggest that the *stimulus* of great literature can be utilised for the perfecting of citizenship? The poet is a sublime teacher, not the less so because the more he is a poet the less is he a direct preacher.

Far more use might be made than is of the great historical dramas of the world if we really desire that our boys and girls should grow up with a keen appreciation of their duty to the State. Only, and it is a painfully pedestrian, though insistently important, detail, English people must learn to *read aloud* better than most of them do, and rid themselves of the national supposition that to manifest emotion is to make a foolish exhibition of one's self, before they can possibly arrive at great results by means of dramatic literature.

The use which can be made of "drum and trumpet" songs is obvious. Some will approve it, others will disapprove it. But I would say in conclusion that any English man, woman, or child must be strangely dense or curiously perverse who could not or would not respond to the splendid challenge in those lines of William Watson, with their perfect music, their superb vision, their inconsistent, if veiled, call to service, those lines in his *Ode on the Coronation of King Edward VII.* :

Time, and the Ocean, and some fostering star  
In high cabal have made us what we are,  
Who stretch one hand to Huron's bearded pines,  
And one on Kashmir's snowy shoulder lay,  
And round the streaming of whose raiment shines  
The iris of the Australasian spray.  
For waters have connived at our designs,  
And winds have plotted with us—and behold,  
Kingdom in kingdom, sway in overway,  
Dominion fold in fold :

So wide of girth this little cirque of gold,  
So great we are, and old.

## THE TEACHING OF GEOGRAPHY IN SECONDARY SCHOOLS.<sup>1</sup>

By B. C. WALLIS, B.Sc., F.C.P.

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SOME years ago the teacher of geography answered the question "Where?" Later he has answered the additional question "Why there?" thus introducing causal relationships. These relationships between cause and effect are most important in teaching in secondary schools, and for this reason we have now to attempt answers to other questions: "What kind?", "How much?" and "Why so much?" Our knowledge must be measured, our relationships capable of quantitative expression. Thus, geography becomes scientific, and the methods of teaching scientific subjects, methods of observation, classification and hypothesis, become applicable to a subject which in earlier days was frequently a mere memory drill.

Somewhat similarly the teacher of geography

<sup>1</sup> A paper read at the London County Council Conference of Teachers on January 6th.

has changed his outlook: in times past he taught politically; each State was a subject for one or more lessons; then the idea of causation compelled attention to regions of the same type in contrast with regions of a different type, and political boundaries were to some extent displaced by boundaries dependent upon climatic and vegetation conditions. But the need for measurement forces attention once more upon the single State as a geographical unit, not a unit from the point of view of climate, or of vegetation, but a unit from the point of view of the world's work. Scientific geography thus deals with a unit world, of which the political States form definite parts, containing definite numbers of people who earn their livelihood and pass their lives in definite ways, and the problems of geography relate to the extent to which peoples in similar parts of the world live similarly, and to the extent by which they differ, and why.

The primary idea of our course is the unit world, of which the important part contains the shore lands of the North Atlantic Ocean, and the most important part is the British Isles. The course is divided into four stages.

The **FIRST STAGE** deals with the globe as a model of the earth, and is mainly observational and descriptive; it lasts for one year, when the boys are about eleven years old.

The **SECOND STAGE** deals, during the next three years, with certain facts expressed in quantities in regard to the world, the North Atlantic shore lands, and the British Isles.

In the **THIRD STAGE** an attempt is made to apply the methods of investigation used in the previous stage to the original authorities; this lasts for one year.

The **FINAL STAGE**, during the last two years of school life, is somewhat limited by the fact that there are examinations to face, but the work aims at a detailed analysis of the facts already learnt. In order to emphasise the reaction between man and his environment, the control of man's activities by relief and by climate is examined so as to complete the outline knowledge which has already been obtained.

A more complete account may now be given of the second and third stages. The *Second Stage* is introductory and experimental in regard to quantitative facts concerning areas, climate, and vegetation. During half the time the facts relate to the whole world or to the British Isles; during the rest of the time they relate to the world as a whole, or to the North Atlantic shore lands.

We begin with the measurement of lengths and their representation: areas are measured, plans are made, and the elements of triangulation receive careful treatment. Heights are measured and their representation by means of contour lines is examined. The political and orographical maps in school atlases are understood, and throughout the three years of this stage there is gradual development of knowledge which results in an appreciation of Ordnance Survey maps.

The sequence may be shown by a few illustra-

tions. First is a map of a meandering stream made by two boys on an afternoon holiday; this is an example of voluntary work subsequent to the making of plans in the school grounds. Simple contoured maps are next considered, and each boy makes a tracing of the contours in the neighbourhood of the Dorking and Guildford Gaps in the North Downs; he then traces from a second map the roads and railways of the same district; the second tracing is superimposed upon the first, and each boy writes an account of the facts which he notices; the written accounts are examined and discussed with their authors, and a short class discussion follows.

Orographical maps are treated on the same plan throughout; the illustrations refer to Europe. A tracing is made of the 100-fathom line and labelled "Europe if the sea fell 600 feet"; a second tracing is made of the 600-feet contour, and this is labelled "Europe if the sea rose 600 feet"; while a third tracing is made of the 3,000-feet contour, and is labelled "Europe if the sea rose 3,000 feet." Written accounts are then made of the facts in regard to each map separately and in regard to the result obtained by placing the three tracings over each other. This result is then compared with the greater detail of the wall map; the work done by the boys is criticised, and a class discussion follows.

Finally, a modified Ordnance Survey map of a portion of England is examined in relation to both a first-hand descriptive account of the area and a photograph from one place. An illustration was shown of a map of the Eden Valley. The boys are asked to describe what they would see if they stood at a certain place, say Shap Summit, and looked in a certain direction. The results usually show a failure to appreciate the way in which a slight eminence in the foreground will obscure higher but more distant elevations; this inaccuracy is corrected by making in outline a panoramic picture of the view. For example, in regard to Shap Summit, it is frequently supposed that Penrith can be seen to the north, but the picture made by one of the boys shows the limited view from Shap Summit. Such pictures are made direct from the maps as a result of measurements and calculations. In such ways map records of relief are studied.

While the work on relief is progressing, the consideration of climatic facts is begun. It is an easy development to pass from the contour line to the isotherm and the isobar. Climate values are supplied with reference to the British Isles; isotherms, isobars, &c., are made; monthly variations in temperature, pressure, rainfall, &c., are graphed; and in each exercise the boys draw their own conclusions. As soon as the methods of representation are understood, the standard lines are considered, and the climate of the British Isles is discussed fully in class. One example of a heuristic exercise will suffice here: a map is supplied showing the directions of the winds over the North Atlantic Ocean; a tracing of this map is made, on which the boys insert from their atlas

the annual isobars. The boys readily state the law connecting wind direction and pressure distribution, and test the accuracy of their deduction by consideration of a standard map showing isobars and wind arrows. Later work in climate refers to specific problems, such as the peculiar winter climatic conditions of the north-east Atlantic Ocean, which are summarised in Mr. Mackinder's phrase "the winter gulf of warmth," the winter rains of the Mediterranean region, and the monsoons of south-east Asia. Finally, a class discussion brings out the dependence of climate upon what we call "the swing of the sun," and our explanation of climatic phenomena stops for the time being at this point.

As this work is developed, attention passes to the main facts regarding the vegetation regions of the world. Facts are supplied relating to forests, grasslands, and deserts; these are first treated separately and then summarised on one map. Additional facts are supplied concerning cereals and domestic animals in the world and in the British Isles, illustrative maps are made, and the boys state their own conclusions, which are co-ordinated among themselves and with the world vegetation regions in a class discussion. For example, in the case of wheat, from data supplied maps are made to show the parts of Britain where the wheat yield is good; these are compared with rainfall and sunshine maps previously made, and the boys state their conclusions as to the distribution of wheat in Britain, and the climatic cause of this distribution. The essential contrast between wheat-land and oat-land is thus discovered. Maps are then made to show the distribution of wheat producers in the world generally, while a diagram follows to show the proportions in which each country grows its share of the world's wheat. The wheat supply of the British Isles is then illustrated by a diagram. In each exercise the boys state what they notice, and during a class discussion all essential points are brought out for consideration, while simpler statements of the quantitative facts are obtained in a form easily to be remembered; roughly, one million quarters of

wheat are reaped in the world per day. Our contribution to this is 2 per cent., and we consume 10 per cent., which amounts to about 1 lb. of wheat per day per head; four ounces of this lb. come from the United States, and the rest is supplied in roughly four equal shares by Argentina, the British Empire, our own islands, and the rest of the world.

Other vegetation products, such as timber, sugar, &c., and such secondary products as meat and wool, are treated similarly, and the whole body of knowledge is co-ordinated with the summary of climatic conditions which has previously been made. The isolated facts are noted by the boys separately, while the co-ordinations are completed

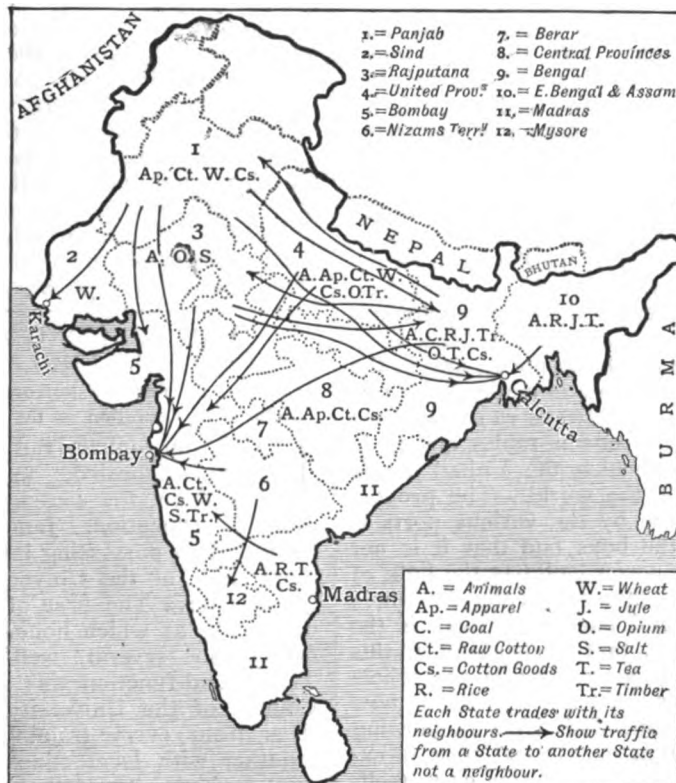
in class discussions.

In this way the boys obtain an equipment of facts which serves as a basis with which to compare later knowledge, and an equipment of method which serves as a means of subsequent investigation.

During the development of this double equipment a halt is called for the purpose of making a special study of certain districts in the British Isles. Definite areas are considered, and specific exercises are performed with reference to relief, the aggregation of people into towns and the causes thereof, lines and methods of communication: the

occupations of the people in relation to agriculture and mining are considered. Thus, the cotton towns, the woollen towns, the metropolitan area, the Black Country, &c., are studied, and some knowledge of our own islands obtained. Towards the end of this stage a similar study is made of the shore lands of the North Atlantic Ocean, with special reference to the accessibility of these lands from the sea. One illustration may be given here; a map was made by a boy in regard to the ferry towns of the narrow seas from data obtained by himself mainly from the steamship index to the railway guide.

Attention may now be turned to the *Third Stage*. The class is divided into five sets, and each set investigates the facts as supplied in the original records regarding a definite aspect of a given country. In the case of Canada, one set



Indian "Home Trade."

Emery Walker Sc.

investigates the relief, a second set the climate, a third set the vegetation and its results, a fourth set the minerals and such occupations of the people as fishing, while a fifth set studies communications and trade. Each set works out its results, and these results are discussed in class, so that each boy records one set of facts in detail and the rest in outline. When the next country is taken each set of boys investigates a different set of facts. In so far as our equipment allows, work is done with original publications, but manuscript copies of these have to be supplied in some cases by the teacher.

Two illustrations will show the nature of the work. Particulars are obtained from official sources of the internal trade between the different parts of India. The facts are grouped and an illustrative map made. This serves to show to some extent the occupations of the people, and also what is meant by home trade, and by inference the boys obtain some notion of the traffic between the different counties of England and the different States of the United States. Similar facts had previously been considered in the simpler case of inter-State trade in Australia. The second example refers to New York. In the work on the relief of the country, note is made of the gap made by the Hudson River; in the work on climate, note is made of the facts which favour New York at the expense of more northerly ports; and in the work on communications, note is made of the fact that the trans-continental railways run from New York. From the official returns tables are made showing the articles in which the United States trades with the rest of the world. The proportions of this trade borne by the various ports is then calculated, and the boys find that it is not necessarily the nearest port which has the bulk of the traffic. It is found that practically the whole of the United States and part of Canada is the hinterland of New York, that the outland, if this term may be used, of New York is the whole world. But the matter must not rest here: how do these facts affect New York? A map showing the density of population near New York is examined, followed by a map of the city itself, showing the long, narrow island, the bridges across the East River, the tunnels under the Hudson River, the railways and their termini, the tramways and the tube-ways with the docks and ferry routes. This leads to an idea of the importance of New York, and prepares the way for an adequate appreciation of the similar but more complex problem of our own city of London, which is studied at the close of this stage of the work in similar fashion.

In this article attention has been concentrated upon the more novel features of the work we do. The first and fourth stages are more or less similar in character to the work usually done, where the teacher is forced by considerations of time and examinations to lecture in a greater or less degree to the class; but our two intervening stages are intended to provide an equipment of knowledge and method which will make it possible for the teacher to lecture to a class of well-prepared pupils

who have had some training in investigation on their own account, and can thus more readily appreciate the points made by the teacher.

In conclusion, a word on the aspect of causation which is essential to geography, that of the co-existence in a complex whole of many factors of varying degrees of importance, which combine in effect to yield the result observed. Geography deals with the world as it is, with the work of the world as it is now performed, and the strictly geographical explanation necessarily stops at the estimation of these factors and their value. It is our aim to train the boys to appreciate first the interaction of these factors; and, secondly, to value the force with which these factors act; and for this purpose it is essential that we should deal with quantities, that we should find out, for example, in the case of the world's minerals, not necessarily where all such deposits occur, but where such deposits are worked, and the extent to which they contribute to the world's supply.

The last decade has seen all lands draw closer together, and we should therefore provide our pupils with an intelligent grasp of the world as a unit, of which our British Empire is a synopsis, and in which our own country and our own city stand out as of supreme importance.

#### DAY TRAINING COLLEGES IN ENGLAND.

By PETER SANDIFORD, M.Sc., Ph.D.

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EARLY in January the University of Manchester celebrated, in somewhat elaborate fashion, the coming of age of its Department of Education. January 4th was set apart for functions possessing interest beyond the immediate circle of the University and the City of Manchester. The first of these was a degree ceremony, at which honorary degrees were conferred on several well-known educationists.<sup>1</sup> The second function was a reception held by the Council of the University, to which representatives from every training college in England, together with local educationists of every type, were invited. The following day was devoted to business meetings and festivities, which were attended by past and present students of the Education Department. For more permanent record the University published a commemoration volume entitled "The Department of Education in the University of Manchester, 1890-1911," in which appeared a register of students, and articles by Prof. M. E. Sadler and Mr. W. T. Goode.

The foregoing brief sketch will indicate that the functions were of national importance, for Manchester did honour to English education (using the term in its widest sense), and more especially to that section connected with the training of teachers. As one observer said, "it seemed as if

<sup>1</sup> The honorary degree of LL.D. was conferred on Mr. Walter Runciman, M.P., President of the Board of Education; and the honorary M.A. degree upon Miss Margaret Ashton, a councillor of the city of Manchester; Miss Lydia Manley, principal of the Stockwell Training College; Mr. William Thomas Goode, principal of the Graystone Place Training College, London, and late master of method in the University of Manchester; and Mr. George Sharples, headmaster of the Waterloo Road School, Manchester, and a past president of the National Union of Teachers.

education had suddenly changed from the Cinderella to the fairy princess of studies."

Why, it will be asked, was it reserved for the late nineteenth century to witness the recognition of education as a university subject, and why were day training colleges in universities so late in their foundation? Only partial answers can be given, but a faulty psychology and a wrong social ideal would seem to be at the root of the matter.

Specific training for the teaching profession is usually traced back to Lancaster and Bell in England, to the Abbé de la Salle (1681) in France, and to Frederick II. (1698) in Germany. But as a matter of fact it is practically impossible to say who was the first either to make suggestions for the definite professional training of teachers or to put the suggestions into practice.

The monitorial system of Lancaster and Bell was certainly not original with them. It was in active use in Elizabethan times. The fundamental error of the theory can be traced to the writings of Ratke and Comenius. These writers emphasised universality of "method"; knowledge of subject-matter was of secondary importance. "As soon as we have discovered the proper method it will be no harder to teach schoolboys in any number, than with the help of the printing press to cover a thousand sheets daily with the neatest writing," says Comenius. So gradually teaching came to be looked upon as a pouring in of information, and it was unnecessary for the pourer either to be old or erudite.

But it was stern necessity which drove Lancaster and Bell to utilise monitors. Both wanted teachers, and both were unable to supply them, so they began to train the older and brighter boys for this office. The system demanded careful attention to the organisation of the school. In class management the most mechanical of routine drills became essential, and excessive use was made both of degrading punishments and of emulation and rewards. In its early stages the monitorial system worked very smoothly, especially as carried out by the Kildare Place Society in Ireland (1811-31), but later it fell into disuse, and by the time of the foundation of the Committee of Council on Education in 1839, it was hopelessly discredited as a method of training teachers. The pupil-teacher system (borrowed from Holland by Sir James Kay Shuttleworth) was then introduced. This method, although an advance on the monitorial system of training, was wrong in its fundamental principles, and even the widespread foundation of normal schools did not remedy all, or even the greater part of its failings.

A glimmering of greater enlightenment appeared in the formation of centre classes in 1874. Although the promoters recognised to some extent the necessity of professional training based on a broad and thorough knowledge of academic subjects, they were greatly hampered by the necessity of giving both things contemporaneously. This difficulty has now been removed, so far as the preliminary education of teachers is

concerned, by the introduction of the bursar system, but it is yet a very real difficulty in the administration of training colleges, especially those connected with universities.

According to Prof. Sadler<sup>1</sup> the necessity for the day training college arose out of the rapid increase in the number of teachers, especially women teachers, consequent upon the passing of the Elementary Education Act of 1870. At first the proposal was to empower local education authorities to provide facilities for training, but the line of least resistance proved to be the establishment of training colleges in connection with universities and university colleges, and the line of least resistance, as is almost universally the case in England, was followed. In this matter England followed Scottish precedent. Owing to the comparative cheapness of a university course and the willingness of parents to make sacrifices for the education of their children, Scotland had never wholly lost the connection between the elementary (parochial) schools and the universities. The foundation and support of normal schools by the Committee of Council on Education from 1841 onwards had diminished, but not destroyed, it. Further, the principal normal schools in Scotland were situated in university towns; hence it was but a short step to encourage the brighter normal pupils to attend university courses at the end of their two years of training. This was done in Edinburgh in 1862. The Scotch Education Department (founded in 1872) went a step further. In 1873 the Scotch Code contained clauses which permitted normal students to attend the university during the period of professional training, and also permitted graduates of the university, after satisfying an inspector of their practical skill as teachers, to present themselves at the examination for the teachers' certificate.

The establishment of day training colleges in England in 1890 followed the recommendations of the final report of the Cross Commission (1886-8). This report stated: "Considering the large need which exists for more ample or more generally available opportunities of training, and the importance of giving every facility for training to those who now obtain certificates without it, an experiment should be made of training non-residential students in connection with local university colleges." The scheme, entered into with great trepidation, surpassed all expectations. Since 1890 no new residential colleges have been established. The foundation of day training colleges followed each other in rapid succession, as can be seen from the following list of dates: 1890, Birmingham, Cardiff, London (King's College), Manchester, Newcastle-on-Tyne, and Nottingham; 1891, Cambridge, Leeds, and Liverpool; 1892, Bristol, London, University College (discontinued 1895), and Oxford; 1894, Bangor; 1899, Reading and Southampton; 1901, Exeter; 1902, London, Southampton Row; 1904, London, Graystone Place.

<sup>1</sup> "The Department of Education in the University of Manchester, 1890-1911."



Of the present success of day training colleges, in spite of certain grave administrative difficulties, there can be no doubt. But what of the future? Will the double requirements (those of the Board and the University) for entrance to a training college in connection with a university be maintained? We sincerely hope not, for the present attitude of the Board is one of extreme scepticism, nay, of actual distrust, of the scholarship standards of the universities. Will the anomalous position of a professor of education who must attend the meetings of both the faculties of arts and science be maintained? We trust not, for education must be made into a separate faculty, like medicine or commerce, if the internal difficulties of university education departments are to disappear.

And what of the training-college staffs? England, at the present moment, is one of the few countries in the world which must needs send its teachers of teachers abroad if they desire an adequate professional training. Shall we model in London or Manchester a teachers' college on the lines of the one at Columbia University, or shall we follow the example of the French and establish schools comparable to the primary higher normal schools of Fontenay-aux-Roses and Saint-Cloud? Probably an institution embodying the highest in both types would suit English conditions best. Whatever is ultimately done, great freedom will be absolutely essential; freedom for research, not only among books, but also in schools—experimental and otherwise; freedom of administration, so that new ventures may be made without let or hindrance; and lastly, freedom from financial cares for the training of scholars in education is worthy of the most generous support both by the State and the private individual.

### SOME EXPERIMENTS IN THE TEACHING OF HISTORY.<sup>1</sup>

By ARNOLD SMITH, M.A.

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SINCE it is to the imagination of the child that history makes its strongest appeal, our efforts at the preparatory stage will not be misdirected if we utilise this fact to lay the foundations of riper study. It is here that the teaching of history by means of dramatic representations may be useful. I have tried the following experiment with boys of twelve years of age, most of whom were first year junior county scholars. The form, consisting of about twenty boys, was invited to tell dramatically the story of the Norman Conquest, the class being divided for the purpose into three sets, and every boy taking a part. They were asked, first, to select some striking incidents on which the play should turn. It was pointed out to them that to act the story was not

the same as to tell it; for the historian can talk of causes and effects, but the dramatist must show these causes and effects as they issue in character and action. The scenes must be interesting in themselves, and must lead naturally one to another; the play must, in short, have a unity, and its parts be of dramatic significance. Some boy suggested that Harold's oath to William should be the starting-point, and this was accepted. The next question which arose was how should the intervals of time be marked, and, in the absence of scenery, change of place indicated.

The device of a "story-teller" was adopted, who should introduce the play, explain briefly what was going on, and generally supervise the arrangements. A further question occurred as to the method by which battles should be depicted. A *mêlée* might offer opportunities to the humorist, and, though a single combat can be managed with dignity, a general conflict is apt to be more distracting than educational. We therefore fell back on the classical convention of the Messenger to describe our battles, with this advantage, that anything lost in realism was more than compensated by the excellent practice afforded in oral composition. On these few hints the boys proceeded to prepare their play out of school hours, working on it with all the enthusiasm born of a new interest. The chapters in the text-book on Edward the Confessor and Harold were read in a new spirit, and in a few days the boys were eager to show their results.

The play opened at the court of William of Normandy. A Saxon thane who has been in attendance on Harold arrives with the news of Harold's imprisonment by the Count of Ponthieu, and converses with a Norman baron whom he had met previously at the court of Edward the Confessor. What will William do? The Norman says that William will force the Count to surrender his prisoner, but that, since Harold is so important a noble, the latter will not be allowed to leave Normandy until he has taken the oath of allegiance to the Duke. And what if Harold refuses? Harold had better not refuse, for William is a stark man to his enemies, though mild and debonaire to his friends. Harold appears in scene two and hears from his thane what is expected of him. He repudiates the idea of taking the oath to William, but his counsellor advises caution, and suggests that, if he takes the oath, he can break it when he returns to England. Harold in a soliloquy considers the position from various points of view, and decides to give way. In the next scene he takes the oath over the bones of the saints—represented for the nonce by a box of chalk covered with a duster—and, when the cloth is snatched away and the awful relics are revealed, the Normans point admonitory fingers and Harold realises the tremendous penalties of his promise.

The next scene is in England; Edward the Confessor asks after Harold and is told that he has been wrecked on the coast of Normandy, and that William has made him swear to help him to obtain

<sup>1</sup> From a paper read at the London County Council Conference of Teachers on January 6th.



the crown of England. The master afterwards pointed out that this announcement was premature, and the scene was amended. We then hear a conversation between Harold and Stigand. The latter urges Harold to break his oath, on the ground that he has been forced to take it, and the country demands his services. Harold hesitates. Motives of patriotism prevail, and, when a messenger enters announcing the death of King Edward, Stigand falls on one knee and hails Harold King of England. We now are introduced to the court of Harold, and Tostig arrives from Northumbria, whence he has been driven by his subjects. "They say you have treated the Northumbrians unjustly," remarks Harold. "No, I haven't," replies Tostig; "and, besides, you are my brother, and you ought to take my side." "No, if you have ruled unjustly, you shall lose your earldom, although you are my brother." "Then I will go to Harold Hardrada and ask him to help me to regain my earldom." This remark was afterwards altered when it was pointed out that Tostig would hardly have disclosed his intentions so openly. We now see the court of Harold during his absence; he is in the north, where he has gone to fight the rebellious Tostig and his foreign ally. A messenger that has been an eye-witness of the battle of Stamford Bridge enters and describes the defeat and death of Hardrada and Tostig, not forgetting the brave stand made on the bridge by a Norse warrior, who for a long time held the Saxons at bay with his single arm. We next hear that Harold has gone south by forced marches to meet the invasion of William, and finally another messenger brings tidings of the battle of Hastings and the overthrow of the Saxon hopes. The court breaks up in confusion, and the story-teller announces that William is marching on London, and will soon be there. Such is, in brief, the story of the Norman invasion, as told, baldly enough, by a class of boys who were neither particularly clever nor, previously to this experiment, particularly interested in the careers of Harold and William.

It remains to consider what benefit they have derived from the exercise. The first and most obvious result is that they have learned, however crudely, to express themselves, and every teacher knows how difficult it is to get a boy of twelve to give an intelligent and coherent account of what he has read. In the second place, they have done a great deal of honest work under the impression that they were playing a new kind of game, and they have obtained a clear conception of a certain sequence of events. In the third place, they have acquired a new interest in historical characters; they have formed certain conclusions as to motive, and cause and effect. Here is the opportunity for the teacher: he can explain the religious feeling of the time, comment on William's astuteness and statemanship, discuss Harold's probable motives, and contrast the feudal and Teutonic ideas of kingship. In all this the boys take a personal interest: William and Harold are no longer names in a text-book; their motives and behaviour are a very par-

ticular possession of Jones minor and Robinson secundus, contemporaries in the lower third.

A growing self-consciousness in the boys forbids dramatic representations of this character in the second year of the course. The experiment does not appeal to older boys; they are apt to think it silly; but, as their reflective power matures, they may be appealed to in another way. Boys in the fourth form do, as part of the regular course in history, some work that I have labelled, I hope not too pretentiously, "History-research." The first year's course has covered in a general way English history from the beginning to 1485, two periods a week ( $1\frac{3}{4}$  hours) being devoted to the subject. In the second year the time for history is increased to  $2\frac{1}{2}$  hours, one period of an hour and another of an hour and a half, the latter being given to an experiment in individual work. What is here aimed at is that the pupil should obtain an independent mastery of some historical subject with which he is already familiar in outline, reading extracts from contemporary writers, and studying standard works, contrasting authorities, considering evidence, and expressing his results in a systematic form. A series of subjects is arranged, and lists are drawn up of available books dealing with them. The books are provided by the school. A sum of about £10 was spent on cheap reprints and other necessary works, and this was supplemented by books borrowed from the Polytechnic library. Two forms, each consisting of twenty-five boys, were in this way provided with materials.

The following are a few examples of the subjects and the books studied in connection with them:

1. The Early Britons and the Roman and Saxon Conquests.
  - (i) Caesar's Invasion of Britain and the Germania and Agricola of Tacitus. (Blackie.)
  - (ii) Bode's Ecclesiastical History (extracts). (Blackie.)
  - (iii) "Puck of Pook's Hill."
  - (iv) Green's History of England.
2. The Norman Conquest.
  - (i) The Anglo-Saxon Chronicle (extracts).
  - (ii) Freeman's "William the Conqueror."
  - (iii) Fletcher's History of England, vol. i.
  - (iv) Lytton's "Harold."
3. England and the Crusades.
  - (i) "The Crusades." (Epochs of Modern History.)
  - (ii) Joinville's Memoirs.
  - (iii) Scott's "Ivanhoe" and "The Talisman."
4. The reign of Elizabeth.
  - (i) "The Spanish Armada," &c. (contemporary accounts). (Blackie.)
  - (ii) Froude's "Elizabethan Seamen."
  - (iii) Beesley's "Queen Elizabeth."
  - (iv) Macaulay's "The Armada."
  - (v) Tennyson's "The Revenge."
  - (vi) Kingsley's "Westward Ho!"

It will be seen from these examples that each subject provides, first, one or more contemporary records; secondly, one or more standard historical works; thirdly, one or more historical novels. At the beginning of the term the boys were asked to choose their subjects. Two or three boys might

choose the same subject, but if more than this number applied, the teacher selected some, and the others made a fresh choice. Having chosen his subject, the boy was supplied with the books, or, if more boys than one were engaged on the same subject, the books were distributed amongst them and exchanged when read. The pupil's first duty was to write down in his note-book (the quarto size is most convenient) a list of the books he had to read. He was then given a list of questions which he must answer in his note-book, after he had read the works prescribed.

As an example I will give one such list of questions, that on the Norman Conquest.

1. What do you understand by the "Anglo-Saxon Chronicle," and how was it compiled?
2. What references to King Harold do you find in the Anglo-Saxon Chronicle? Give dates and précis of subject-matter.
3. Write an account of William's reign as Duke of Normandy before the conquest of England.
4. "Each step in his career as Conqueror was a step downwards." What proof does Freeman offer of this statement?
5. Discuss Edward's designation of William as his successor.
6. What are your opinions on the subject of Harold's oath to William?
7. Give a brief account of the battle of Hastings.
8. How far was the Norman conquest of England complete, and in what way did William settle the country.
9. What was the Feudal system, and what deviations from the Continental system were introduced by William?
10. Mention the revolts against William.
11. What is your opinion of William as a statesman and a man?
12. Give some account of the influence of the Norman Conquest on the English language. (For this question an historical grammar was provided.)
13. Write a biographical note on Freeman.

The books were read (with the exception of the historical novels) and the questions answered in school; each subject occupied for about a term the boys that were engaged upon it. Since the books were read in school the master could be referred to for explanations, but the pupils were encouraged to puzzle out difficulties, so far as possible, for themselves. The school possesses a Webster and several smaller dictionaries; these were placed in the class-room and constantly referred to by the boys when they came across words they did not understand.

The function of the master was not to teach directly, but to advise, to help where necessary, to control the output and exchange of books, and, finally, to correct and mark the note-books. A boy might also obtain help from other boys engaged on the same subject. By the end of the term every boy in two forms had gone through one subject in this way. During the last week of the term it was arranged that the two forms should meet for a debate, each boy propounding a question on the subject he had studied to the opposite form, and receiving an answer, which he

in turn might criticise, from some member that had been engaged on the same work. Marks were adjudged by the master to each answer, and were reckoned to the credit of the form to which the answerer belonged. The master corrected mis-statements, furnished facts that had been omitted, commented on the points raised, and, having totalled the marks, announced which form had proved victorious. Finally, every boy had to write in school, without notes, an essay on some question connected with his subject, this being regarded as an examination on his work.

The experiment that I have described aroused much enthusiasm among the boys, and imparted considerable zest to their studies. It taught them, in the first place, to read closely, and the questions tested the accuracy of their reading. Unless a boy is forced by means of such questions to concentrate his thoughts, there is a danger that he may read a book with little understanding of its import. Foolish or irrelevant answers in the note-books were not wanting, but in the main the short essays and criticisms were to the point, and showed that the writer had obtained a grasp of the salient facts. In most of the subjects a map was required, and these were executed with care and thoroughness, especially when they required some little research; a particularly good map was drawn in connection with "Voyages of Discovery in Tudor Times," Drake's voyage round the world being traced out from a contemporary account.

In the second place, the scheme inculcated business-like methods of study and exposition. It involved the use of a dictionary and demanded neatness and order in the note-books. It should be possible to see clearly from the note-book what work the pupil is doing. Where so much latitude is allowed in the preparation, the utmost precision should be required in the written work, and, unless the teacher is careful to exact this, the results will be desultory and slovenly. But accurate reading and clear exposition are of course by-products, though not on that account less important. What every boy felt was that he had made a real advance in his knowledge of a particular period, and had something to show for it. That the critical faculty had been developed in the process was evident from an exercise on the lines suggested by Mr. Keatinge in his valuable "Studies on the Teaching of History." An extract from Froissart was given to the class without any information as to its authorship, and the pupils were asked to write down everything that could be gathered from internal evidence about the author. The extract was assigned to its proper period, the writer's sympathies were noted, his foreign extraction and acquaintance with England suggested, and those boys who had studied "The Wars of Edward III." or "The Peasant Revolt" as their subject were able to give the author's name.

The scheme of study did not convert a class of fourth-form boys into competent historians, nor was this intended; but the knowledge acquired, and, still more, the way in which it was acquired, could not do otherwise than stimulate the faculties,

enlarge the mind, and strengthen the understanding.

I do not think that the experiments that I have described—together with many to which I have not referred, such as the use of pictures and facsimiles and class debates—can usurp the place of sound work on the regular lines. Judiciously used, they are of the greatest help to such work; they keep the class alert, they afford variety, and they evoke pleasurable effort. They give to the study of history in schools a new meaning by making it more of a personal possession; they draw out a boy's abilities and give him scope for their exercise. They make the pupils love history, and out of this affection, leading them to the study of human character in its manifold developments, they will learn wisdom; and thus the history lesson will become that training school of the mind which its advocates believe in and maintain.

#### PERSONAL PARAGRAPHS.

TO know Mr. S. H. Butcher in connection with education or scholarship was an inspiration. "Onlooker" had that good fortune, and sincerely regrets his loss. Of his career at Marlborough little need be said, though somehow not everyone was prepared for the news that he was captain of football while at school. At Trinity, Cambridge, he showed the characteristics of his life—eagerness, sympathy, strenuousness. He graduated in 1873 as Senior Classic, with Page and Verrall bracketed second. At Oxford, where he became a "married" fellow of University College, with his enthusiasm for Greek literature and his inspiring manner, he soon made his mark as a lecturer. It was in 1879 that the translation of the "Odyssey," in which he collaborated with Mr. Andrew Lang, was published. In 1882 he was appointed to the professorship of Greek at Edinburgh, in succession to Prof. Blackie, and soon succeeded in raising the status of the Greek class. Here he threw himself into politics as a supporter of the Unionist Party. A Scottish professorship is anything but a sinecure; yet in addition to his academical and political work, he found time to produce "Aristotle's Poetics" (1895), "Some Aspects of the Greek Genius" (1891), "Harvard Lectures on Greek Subjects" (1904), and "Aristotle's Theory of Poetry and Fine Art." After his wife's death in 1902, he resigned his professorship, and took up his residence in Tavistock Square, which was the scene of his many—possibly too many—activities. He had been made in 1901 a member of the Royal Commission on University Education in Ireland, and was appointed a member of the later Commission in 1906. He also accepted a place in the Senate of the new Irish National University. In connection with Irish education he did some of the best work of his life. On the death of Sir R. C. Jebb in 1906 he became senior representative of the University of Cambridge, and in Parliament made his maiden speech on the Irish University Bill. Then, as always—he spoke comparatively seldom—he spoke with effect, that is,

with eloquence and mastery of the subject, aided by his obvious sincerity and personal charm.

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LATTERLY, his services to education were many, but perhaps his two chief lines of effort were in connection with the British Academy (founded in 1902) and the Classical Association (founded in 1903). Of the former he was elected president in 1909. As chairman of the council of the Classical Association he did admirable work. One remembers his sympathy with the teachers on all occasions when somewhat extreme professorial views were being urged: he was distinctly on the side of moderate reform. The *Times* comments on his "remarkable combination of judgment, sympathy, and sincerity." This combination was thoroughly exemplified in his Classical Association work. He was courageous, but gentle. I shall always remember how he made a stranger feel at home, and, soon after, a friend. I formed the impression at Tavistock Square that his multiplicity of interests and the vigour which he threw into each and all of them must inevitably lead to exhaustion, even in a man the most strongly constituted. Undoubtedly he was unable to resist his ubiquitous interests or say no to his own strenuousness. He died at the age of sixty. It seems a thousand pities that a man of his charm and culture and humane influence was not spared to give out of his best, apart from the overwork which so easily falls to the most willing workers. Even in a comparatively passive attitude he would have been far too precious to lose for many years to come.

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I REMEMBER well the dignified figure of Dr. Baker during his headmastership of Merchant Taylors' School, and particularly his presidency of the Headmasters' Conference there several years ago. He died in his seventieth year. Himself an old Merchant Taylor, he succeeded to the headmastership in 1870, and reigned successfully for thirty years, resigning at Christmas, 1900, when he retired to Berkhamstead. Early in his headmastership he had to supervise the transference of the school from Suffolk Lane to its present site in Charterhouse Square, Charterhouse School having migrated to Godalming. His interest in his old boys was always enthusiastic. He was greatly pleased with the position in the football world won by the O.M.T. club; and he spent much labour in making the register of old boys as nearly as possible complete and up-to-date. Instruction in Hebrew is a speciality of Merchant Taylors' School, and his proficiency in that subject enabled Dr. Baker as a scholar of St. John's, Oxford, to win the Denyer and Johnson Scholarship, and also in after years to distinguish himself in theology by writing several authoritative books. He published some years ago a collection of excellent versions in Greek and Latin poetry.

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MR. T. E. PAGE, whose long and distinguished services to Charterhouse School have recently

come to a close, will be succeeded by the Rev. E. E. Bryant.

\* \* \*

To the headmastership of the Crypt Grammar School, Gloucester, has been appointed Mr. J. H. E. Crees, who took first classes in the classical tripos in parts one and two. He is also a D.Lit. of London. Mr. Crees is only twenty-eight years of age. He has for the past three years been an assistant-master at Wyggeston School, Leicester.

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CANON T. J. NUNNS had a long and varied educational career. He was a scholar of St. John's, Cambridge, an assistant-master at Bradfield College in its early days, and at Leeds Grammar School, and headmaster of Helston Grammar School from 1861 to 1877, and from 1877 to 1890 of Cordwalles, a well-known private school at Maidenhead. He was a pioneer among preparatory-school masters. He was an exceptional teacher of the classics, being especially strong on the side of Latin prose. His school at Maidenhead was before its time with adequate grounds, general equipment, and staff. Music was warmly encouraged.

\* \* \*

Two prominent workers in Oxford in the cause of women's education have been honoured with places on the Delegacy for Women Students. These are Mrs. Charlotte B. Green and Miss Annie Rogers. The establishment of the delegacy is largely due to the efforts of Miss Rogers, who has for many years been the secretary of the Association for the Education of Women.

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UNIVERSITY COLLEGE, Nottingham, is about to lose the Rev. J. E. Symes, who for the last twenty years has been its principal. He will retire with the title of Emeritus Professor.

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THERE recently died, at the age of forty-six, Mr. Henry Richard Norris, headmaster of Haberdashers' Aske's School, Hatcham, to which he was appointed at the end of 1903. Educated at University College School, he graduated at both London and Cambridge Universities. He took degrees in mathematics, science, and law. He had been assistant-master at Rossall, Ipswich, and the Central Foundation schools. He was also the first headmaster of Barry County School.

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FROM ninety candidates, Mr. Robert Foster Dill, of Oxford University, and the Royal University, Ireland, headmaster of Dungannon Royal School, has been elected headmaster of Foyle College, Londonderry, in succession to Mr. J. C. Dick, resigned.

\* \* \*

"ONLOOKER" had, in Oxford days, made the acquaintance of the Rev. Hereford B. George, who died recently at Oxford. He was for more than fifty years a fellow of New College. His subjects were in the honour school of law and

modern history, but one remembers him chiefly in connection with his favourite subject of military history, in which he did pioneer work at Oxford. He was one of the first members of the University Volunteer Corps, and I well remember some twenty years ago meeting him at a *Kriegspiel* evening at New College when that form of evening recreation was beginning to be popular. Mr. George was also a keen climber, and an authority on the glaciers of the Bernese Oberland.

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At the joint dinner of the Mathematical Association and Public School Science Masters' Association on January 11th, Canon Wilson gave some reminiscences of the days when he commenced work in practical science at Rugby, in a primitive laboratory, and with little knowledge of experimental methods. Conditions have improved greatly since then, and Canon Wilson, projecting his mind into the future, wondered what they would be fifty years hence. His remarks inspired one of the guests (A. J. M.) to express them in the lines subjoined. In explanation of the reference to Moses, it should be stated that a speaker at the afternoon meeting had compared Canon Wilson to the Hebrew patriarch, who after forty years' wandering in the wilderness had reached the promised land.

#### PAST, PRESENT, AND FUTURE.

[A (more or less) Verbatim Report.]

Moses was a Hebrew prophet  
(So I understand),  
And he led the chosen people  
To the promised land.

Moses number two taught science  
(Little though he knew),  
Physics, chemistry, and suchlike,  
Bravely battled through.

In his rock-hewn, dimly lighted,  
Prehistoric lab.,  
Clad in skins, he gaily gurgled  
Scientific gab;

Showed how air expands when heated,  
And on cooling shrinks;  
Juggled with primeval atoms;  
Brewed barbaric stinks.

\* \* \* \* \*  
Pause we now, and reminiscent  
Let the mem'ry range:  
Fifty years of science teaching!  
Oh! the wondrous change!

\* \* \* \* \*  
Bold imagination, pressing,  
Speeds past Time's swift wheels.  
Fifty years of future progress!  
Dazed, the prophet reels.

ONLOOKER.

*Historic Links*, by Miss Maguire, which we reviewed on its first appearance in February, 1907, has now reached a second edition. These "Topographical Aids to the Reading of History," as the sub-title describes them, seem to be reprinted without change from their first edition.

# THE BOARD OF EDUCATION CIRCULAR ON THE TEACHING OF ENGLISH.

THE circulars on Method published by the Board of Education have been curiously unequal. That before us (Circular 753: The Teaching of English in Secondary Schools) is in our opinion equal to the best of them. This is not because it advocates counsels of perfection or because it lays down details to be closely adhered to by the teacher. It does neither; it rather collects for guidance the practice of the best teachers, and adds a running commentary on the principles which have determined this practice. A wise acknowledgment is made of the varying needs and limitations of secondary-school pupils, and an equally wise discretion is left to the teachers who have to deal with them.

We print below what seem to us the salient features of the circular, but we warn our readers that they will not find any great novelties, save the novelty of the central authority emphasising in the most lucid manner possible the paramount necessity for systematic English teaching by teachers with special qualifications for their task. This is not to say that the Board is merely recording the actual state of English teaching at the present time; its aim rather is to take the best standard which present conditions have proved to be attainable, and to bring the vast majority of schools up to this standard. It is precisely by insisting upon what to many are the merest axioms—the value of reading aloud and of learning worthy passages by heart, the inseparableness of literature and composition, the passing of English grammar in the old sense, the rational use of correlation—that the Board is doing the greatest service to the teaching and the study of English in secondary schools.

Many of the Board's contentions might be thought mere commonplaces hardly worth repeating. For instance, the annotated text might be supposed to have disappeared long ago—but the Board knows, as we know, that it dies hard; and so long as it lives there is little hope for effective teaching along the lines of appreciation. It is refreshing in this connection to be told that "teachers must not allow themselves in this matter to be dominated by the supposed requirements of external examinations." When will the Board go one step further and prohibit external examinations for pupils below a reasonable age limit? Or again, when the Board assures us that "essays on abstract and general subjects should be set only to the most advanced pupils, if at all," we seem to be in the region of truisms; but we know to our cost that most of the composition manuals published contain hundreds of suggestions for essays on such subjects as honesty and thrift, with elaborate schemes which only serve to throw into relief the sad fact that these and cognate themes lie entirely outside the pupil's experience.

The last paragraph of the circular contains a truth which, if realised, would enormously simplify the difficulty of teaching English; it is to the effect that every written exercise in any subject of the curriculum must conform to the same stan-

dards of form and substance as are rightly insisted upon by the teacher of English.

**GENERAL PRINCIPLES.**—The instruction in English in a secondary school aims at training the mind to appreciate English literature and at cultivating the power of using the English language in speech and in writing. These objects are equally important, and each implies the other. Without training in the use of language, literature cannot be fully understood or properly appreciated. Without the study of literature there can be no mastery over language; it will not only be loose, incorrect, and awkward, but will also be insufficient for the demands of life. The want of mastery over language resulting from the absence of training in expression is among the most serious drawbacks with which those who are engaged in scientific pursuits or practical occupations have to contend, and which hamper them even in the very subjects in which they are most interested and most proficient. Literature supplies the enlarged vocabulary which is the mechanism of enlarged thought, and for want of which people fall helplessly back on slang, the base coin of language. Pure English is not merely an accomplishment, but an index to and a formative influence over character.

No external authority can or ought to offer detailed guidance. General principles must be translated into practice by the teacher. This requires two things. First, it requires experience. Young teachers will acquire this more quickly by judicious direction from an experienced teacher responsible for the general organisation of the subject, and, in particular, by having opportunities to watch experienced teachers at work. Secondly, it requires what a teacher can only bring to it with himself or herself—tact and common sense.

It has been too often assumed that, at least in the lower forms of a school, any master or mistress can teach English. The assumption, it is to be hoped, only needs to be stated in order to be dismissed; but its adoption in practice has been and is responsible for the failure of the instruction in many schools. Teachers of English, quite as much as the teachers of any other subject, require definite qualifications for their work. They must have studied it before they can be competent to teach it.

One power, in particular, is indispensable—the power of reading aloud clearly, agreeably, and with proper emphasis. This is too much neglected among both teachers and pupils in schools. Like all forms of artistic ability, it demands, no doubt, certain natural gifts; but it can be cultivated by proper pains to a far higher degree of excellence than is usually reached or even attempted.

Literature and composition are not separate subjects in the same sense in which mathematics and Latin, for example, are separate subjects, and they must not be treated as such. They are organically interconnected, so much so as to make it eminently desirable that in any given class the same teacher should be responsible for both, and essential that where this cannot be managed they should be, at all events, kept in close touch with each other.

This circular does not deal with English grammar under a separate head. The parts of speech, with their function in the sentence, and the simple rules of concord, will either be known by pupils before they enter the secondary school or will be taught there as preparatory to the regular school course in English. It should be borne in mind that the simplicity of the rules of concord in English is

a reason for insisting on their accurate observance by the pupils. Grammar should not bulk largely in the regular school teaching of English, and it should not be isolated from composition and literature and made into an abstract exercise. Whole lesson-periods should not be systematically given up to formal grammar, and it should never be assigned as a separate subject to a teacher who takes neither literature nor composition.

**LITERATURE.**—Two classes of books should be excluded from any syllabus of English literature: (1) abridgments, as distinct from selections: these are in no sense literature, whatever other merits they may possess; (2) handbooks and histories of literature, if treated as equivalent to the study of the originals to which they refer, and a knowledge of which they presuppose if they are to be of any value. This objection does not apply to volumes of selections from an author or group of authors; but even these are misused if they are regarded as a substitute for, and not as a supplement to, the reading of complete works.

Again, books are often chosen, not with a single eye on their value as literature, but with reference to their bearing on some other subject of the school course, most commonly history. The study of history may often be lit up by apt illustrations from literature, and the advantages of correlation of this kind have been pointed out in the Board's circular on the teaching of history in secondary schools. Any attempt, however, to erect it into the principle of selection or to apply it mechanically will only do harm in both subjects.

The real teachers of literature are the great writers themselves. The appeal of any work of art is individual and direct; and the greater the work, the more clearly it speaks for itself, and the more serious is the danger of the teacher coming between the author and the reader. In literature, form and matter, words and thought, are inseparable; and if appreciation is to develop at all, it must have at its root close acquaintance with the actual text of the book studied. Its growth in the pupil's mind may be in part fostered by the teacher; but its ripening must come from other influences—from unconscious associations, from remembrance, and, above all, from widening experience of life.

**LEARNING BY HEART.**—From this point of view it is obvious that there is one thing far too little cultivated at the present day, viz., the learning by heart of copious extracts from the English classics. This is not so much a method as the presupposition of all methods. A passage may be read and re-read so often that it is learnt unconsciously, or may be committed directly to memory; this is a matter of method, not of object; but in every class repetition from memory should form an essential part of the instruction in literature. Some passages will be selected from the books included in the school syllabus; others should be taken from good anthologies, which are useful as supplementing for this purpose the complete books studied, and should be in the hands of all the pupils. There is no reason for restricting learning by heart to poetry, as is commonly done; passages of good prose should be learnt by heart also.

Before a piece is learnt by heart, it should be read aloud by the teacher as well as by selected pupils, and both in the reading aloud and in the subsequent repetition from memory, proper emphasis should be laid, not merely on clearness of articulation, but on attention to rhythm,

cadence, and intelligent expression. To allow a pupil to gabble monotonously through a fine passage is a fairly certain way of destroying its beauty and value, not merely for that pupil, but for the whole class.

**KINDS OF READING.**—It remains to speak of the more direct methods of teaching in literature. At the outset, one fundamental distinction should be made. A few of the books selected for study should be read in detail and in their entirety at school; the majority should be mainly read at home, though they will be discussed and passages of them read in class. This difference in procedure corresponds to a real difference in aim.

**USE OF PARAPHRASE.**—Written paraphrase in the hands of a skilful teacher is both a good test of the pupils' understanding and an exercise in the power of expressing their own meaning, which in this case is the amount of meaning that the passage actually conveys to them. It must, however, be used with care, for it has dangers of its own. If wrongly used, it may easily lead to the pernicious belief that one word is as good as another so long as it conveys something like the same meaning, and to the equally pernicious result of mangling the beauty of a fine phrase or passage; for this reason a wise teacher will avoid selecting for written paraphrase passages of special beauty or expressive of deep feeling. Of all poetry, and indeed of all the best prose, it may be said without hesitation that paraphrase is impossible in the sense of conveying the same effect by other words. The use of paraphrase in such cases is to ascertain, so far as may be, that the words and phrases, the construction, and the general drift of the original are understood.

**EDITIONS OF TEXTS.**—It may be assumed that no teacher of literature with the slightest regard for the subject would choose texts designedly edited so as to supply ready-made answers to examination questions; but, apart from such perverted ingenuity, annotated texts may be unsuitable in other ways. For example, the right edition for a teacher cannot possibly be the right edition for the class, for that would mean that teacher and class were on the same level and required the same kind of help. An exhaustive commentary, the fruit, it may be, of fine scholarship and long research, is of real service to the teacher or advanced student; but for children it will only overlay and obscure the text. Generally, much use of notes means that the pupils will be getting from them, without effort of their own, what they ought either to find out for themselves or be made to find out under the teacher's guidance.

**HOME READING.**—The reading of books at home, followed by class discussion, aims at extending acquaintance with literature and insensibly creating the love of good books for their own sake. The works in prose and poetry chosen for the purpose, though similar in kind, will be, in general, longer but easier than those selected for detailed study. The treatment of them by the teacher should be on broad lines, and should deal less with form and style (which are better dealt with in connection with the intensive reading) than with subject-matter. No attempt, however, should be made to "get up" the subject-matter exhaustively; for instance, by reviewing some comparatively simple essay or easy novel chapter by chapter in class. Novels, indeed, though occasionally suggesting points for discussion, are very rarely suitable for reading at school. In all cases discussion and explanation should be fixed on particular features or particular sections of the work, and should be directed to

seeing that the class are able to read it intelligently for themselves, and have so read it.

**COMPOSITION.**—Composition means arrangement, and English composition is the arrangement, in speaking or writing English, of the right words in their right order, so as to convey clearly a consecutive meaning. It thus involves the arrangement, not merely of words, but of the substance of thought which the words are meant to convey. Towards the adequate expression of any thought or argument composition is as important in spoken as in written language. Only through composition can pupils acquire effective mastery of the enlarged vocabulary with which they become acquainted through literature, but which remains inert in their minds without the exercise of applying it to the expression of their own thought.

Exercises in composition should be mainly oral in the preparatory forms, and the practice of composition should be reinforced by insistence on clear and orderly expression by the pupils in all class-work, not in the English classes only. As the pupils advance in the school, written composition will take a larger share in their work. Continuous expression of consecutive thought cannot be mastered until the power of thinking consecutively has been gained, and should not be expected until the pupil has through practice acquired facility in constructing and using the simpler kinds of sentence. The practice of composition will proceed through the paragraph or group of connected sentences to the complete essay or theme. In all these, composition is what converts the loose material of words into an ordered structure, conveying a continuous meaning clearly, and expressing it so as to satisfy the requirements of good sense and good taste.

The mechanism of the composition is determined by the subject-matter. Both alike will accordingly be graded in complexity as the pupil advances in the school. It follows that the choice of subjects for composition requires great care and discrimination. It should also keep in view both variety and connection. Exercises in composition will often be naturally suggested by, and profitably based upon, the work which pupils have done or are doing in other subjects than English. This is obvious as regards history and geography, but is equally applicable to science, and even to mathematics.

In original composition the set essay should be varied, as it easily can be, with other forms, such as letter-writing, summarising, reproducing, or expanding a narrative (or the notes taken at a lesson), or giving an account of a book which the class has been reading.

As regards style, in the earlier stages all that should be expected is the ability to write straightforward grammatical English, and the careful choice of words that express the meaning which it is desired to convey. In the middle and upper forms more and more stress will gradually be laid on both style and structure. Structure—which is the essence of composition in the full sense of that term—is the arrangement of the thought, and of the language expressing the thought, so that the whole piece of composition shall be an organic whole, in which each portion is related to all the rest, in which no part is superfluous and no gap is left. Style is the choice and arrangement of the words in such a structure so that the English shall be not only intelligible, but beautiful, and shall give pleasure as well as express meaning. There may be structure without style; but there cannot be style without structure.

Analysis in its formal sense, i.e., the exercise of

separating sentences into their constituent parts, is the converse process to formal composition. It should be taught as a definite part of the composition teaching, and incidentally as part of the literature teaching also. This work should be mainly oral, but exercises in written analysis should be also set from time to time, beginning with simpler and proceeding to more complex sentences. For pupils who are learning Latin, these exercises may be much reduced in amount. It is of the first importance that analysis should be on right principles. The unit of thought is the sentence, not the word.

## SOME SUBJECTS DISCUSSED AT THE CONFERENCES.

JANUARY is the month of educational conferences and annual meetings of educational associations. It is impossible within the limits of our space to give a full account of the numerous important meetings which have been held. Fortunately, in view of the steps taken by the various associations to provide their members with reports of their proceedings, this is unnecessary; and, following our custom of previous years, we select for comment a few of the most interesting subjects which have been discussed. In other parts of the present issue we print some of the papers which have made a wide appeal, and give brief reports of the more important meetings. In the appended paragraphs will be found extracts from other contributions to the conferences.

### LIBRARIES FOR SCHOOL CHILDREN.

The relation between the public library and the school was discussed at one of the sectional meetings of the North of England Conference. Mr. G. T. Shaw, chief librarian of the Liverpool Public Libraries, described the steps which have been taken successfully in Liverpool to encourage school children to make intelligent use of the public libraries. He recognised that further developments are necessary. Notwithstanding all that is being done, he said, in Liverpool, the feeling, common to those in England who study this question either from the school or library point of view, is shared that the proper conditions for effective co-operation between library and school authorities have yet to be defined. The present position is quite unsatisfactory. In almost every town a different policy is pursued. In some towns the education authorities contribute to the expenditure, in others they do not. In some towns the work has had to be curtailed just at a successful point through lack of library funds. No librarian, however enthusiastic he may be in this work, can contemplate with equanimity the possibility of being placed in the absurd position of starving his adult readers on one hand in order to develop juvenile readers on the other. The time has surely arrived to put this work on a satisfactory basis. Briefly stated, the suggestion Mr. Shaw made is that the educational organisations of the United Kingdom should appoint a representative committee to consider the various systems now in operation, and draw up a practical scheme. This scheme could then be submitted to a joint committee, consisting of representatives from school and library authorities, to amend, approve, and recommend for general adoption. It of course follows that the first drafters of the scheme, if it is to come within the range of practicability, would have to consider, not only what is desirable, but what is possible, both from the school and the library point of view.

Mr. C. J. R. Tipper, director of education for West-



morland, gave an account of how library authorities can assist rural schools. He gave many interesting particulars about Westmorland schools. The total number of schools is 107, the total average attendance 7,200. Most of the schools are small, many are very isolated and accessible only with difficulty; only about one-third are within a mile of a railway station.

Many of the children have to go considerable distances in order to attend school, some living beyond the three-mile limit.

The following table, in which the schools are grouped according to size, shows how few large schools there are, viz.:

| Schools under 20 | 21-50 | 51-100 | 101-150 | Over 150 |
|------------------|-------|--------|---------|----------|
| 9                | 50    | 25     | 14      | 9        |

When the Act of 1902 came into force there were some schools with quite good school libraries, others with a few antiquated and dilapidated books, and a large number with no library. The educational authority was at once faced with a difficulty. If it gave grants to schools which had good libraries, it would have to institute libraries in all. This meant considerable expense; and if a grant of so much per head had been made, the smaller schools in which a library is much needed would have gained little benefit. At this juncture, a suggestion from the Kendal Public Library led to negotiations, and a scheme was drawn up which, with slight modifications, is still in operation. Briefly, the education authority pays the Kendal Public Library £75 per annum, for which an allowance of 1,500 books for the elementary schools is made, being at the rate of 1s. per book. The 1,500 books are allocated to the different schools, roughly according to the size of the upper standards, no school, however, getting fewer than ten. Boxes for transit are provided, and books to the number allowed sent to each school. They are kept as long as required, and then returned to the library, a fresh selection being made. There is no limit to the number of times they may be changed, but the average is three or four times per annum, the smaller schools usually changing them more often than the larger. Thus as many as 5,000 or 6,000 books may pass through the schools in the year, or more if they are required. All carriage is paid at the library, which simplifies the account.

#### SCHOOL MUSIC.

Teachers of singing in schools were offered many useful hints in the sectional meeting of the North of England Conference which dealt with school music. Dr. Arthur Somervell, inspector of music for the Board of Education, in a helpful paper on singing in schools, said that one of the things which to his mind stands largely in the way of truly self-expressive singing in children is the rooted idea that if children are singing it is necessary that the teacher should conduct all the time, and that the class should keep their eyes fixed on the baton. It should always be remembered that the music that children sing is usually very simple; if it is not simple the vast majority ought not to be singing it at all. In the case of unison songs and part-songs that they already know, once started, it is far better not to conduct at all unless there is serious danger of mishap. The teacher should watch and, if necessary, start each verse, and, of course, be ready to retrieve any mistake. Beyond this, conducting is generally only a clog on the performance. If anyone doubts this, let him try the experiment with his own class; let him take a song that the children all know, and let them sing it through first with the baton and then without. The first thing that becomes evident is that the class keeps

just as good time without the stick as with it. The next thing is that there is greater breadth of expression, more elasticity and vitality, and that the enjoyment of the children is expressed on their faces.

Mr. Harry Evans, who gave the meeting his impressions of school music, insisted that the teaching of music in the schools may become a vital force in the development of the art in this country, and that it is more important to awaken the sympathetic chord in the child's nature, and to bring it early in touch with the beautiful in music, than it is to teach sol-fa, time-names, and so forth. This need not deter primary-school children from gaining some knowledge of reading at sight in the upper standards, thus fitting them as useful members of choral societies in after-life. It is, he continued, a mistake to have the singing lesson at the close of the morning or afternoon session, especially the latter, when teacher and pupils are tired. The complaint of the teacher is that there is no time, and that not much can be done in an hour a week. But much may be done; and is it not possible to divide an hour up into quarters—the quarter of an hour's singing lesson to be a real recreation between the other subjects of study? This is not possible except where a definite method has been in use and mastered. He concluded by expressing the hope that education authorities and teachers generally will soon come to appreciate the possibilities—greater than ever before—and the immense benefits in the school life, and more especially in after-life, that may be the result of an enlightened and more sympathetic method of teaching music in schools.

#### ART TEACHING IN RELATION TO INDUSTRY.

Mr. Fred Burrage, principal of the Liverpool School of Art, contributed an important paper on art education in relation to handicraft and manufacture to the Liverpool Conference. The school of art, he said, is the place where the applied arts and manufactures should be fostered. Schools of art, by the development of their trade sections, are gradually obtaining their legitimate position in relation to subjects which, art being at the root of the whole business, cannot be efficiently dealt with elsewhere. And further, the recognition that this side of an art school's activities should be chiefly concerned with the art manufactures and handicrafts of importance in its district is leading towards specialisation to meet local needs.

This movement in art education is subject to much criticism: on one hand by those who, from the desire that education should always be kept on a very high plane, consider any scheme of definite trade application to be materialism and a limitation; on the other hand by that type of employer who, while admitting the interdependence of art and handicraft, is slow to admit the interdependence of the school and the workshop—largely because he feels that education is out of touch with business, and therefore suspects that the instruction offered in the school of art is not applicable to modern industrial conditions and directly useful in commerce. Too frequently having only a rule-of-thumb acquaintance with art, he considers the school of art should teach that which is limited by his requirements as an employer—that it should drill the employee merely in that which will make him more useful at his particular job in the shop.

The attitudes of the strictly utilitarian employer and the rather irresponsible idealist represent the two extremes, and there is an obvious course to steer between them. Craftsmen, designers for manufactures, and workers at manufactures should be encouraged to aim at a high artistic standard, and, so far as opportunity permits, be

given a sound art education as the basis of their specialised training. But few are fitted to continue to train as artists or handicraftsmen in the highest acceptance of the term; the majority of art students will gain their livings in commonplace ways, and must be prepared to take advantage of commonplace opportunities, and in their interests, and the interests of trade and manufacture, we must neither teach over their heads nor give them such exalted notions of what should be the practical application of their art training as to render them unfit to play their part in life. A considerable proportion of the professional students of a school of art are already engaged in or will apply themselves to local industry; they are or will become trade workmen, and although some of them may at the best perform only perfunctory work, so far as art is concerned, it is the duty of the school of art to afford such students the most fitting educational supplement to the workshop. Hence attention to local needs, instead of being a materialistic limitation of the educational ideal, is a logical continuation of the work of specialisation.

#### SCHOOL GARDENS.

The teaching of school gardening was dealt with both at the Liverpool Conference and at the annual meeting of the Private Schools' Association. At the former gathering, Mr. Graham Balfour, director of education for Staffordshire, gave details as to the administrator's connection with the subject, and provided useful facts as to what has been accomplished in this direction in Staffordshire. Incidentally, he enumerated the qualifications of the ideal teacher of school gardening in a primary school. His experience is that the ideal teacher is the trained and certificated schoolmaster, who is an expert and enthusiastic gardener, who has worked at the science and theory of gardening and its allied subjects, has sat for the examination of the Royal Horticultural Society, and has attended a summer course at an agricultural college. In the last respect, Staffordshire is greatly helped by the Harper-Adams College, founded for the benefit of Shropshire and Staffordshire, which for several years has had an excellent summer course of a fortnight's duration for men teachers. In 1901 the Harper-Adams College started such a course for teachers, and the Staffordshire Technical Instruction Committee allowed five elementary-school teachers from its area to go on their own application; but not having direct knowledge of the elementary schools, the education authority could not check the teachers' work sufficiently to form any real opinion of their merits. From the authority's point of view the course was an entire failure and wholly useless, the teachers being quite unsuitable. The summer course was dropped, and revived again in 1908, and in the last three years there has not been one case of failure, as the teachers are invited with a full knowledge of their schools and personal qualifications.

The ideal teacher, or even an approximation to him, is, however, not always obtainable, and in a very limited number of cases, on the favourable report of the instructor, a skilled gardener has been allowed by the Staffordshire authority to take the class, rather than have no garden. In such instances everything possible is done to interest the head teacher and get him or her to co-ordinate the school work with the work of the garden. It is the living interest of the teacher who is always on the spot that counts for most, and it is this that will best diffuse the valuable effects of the garden throughout the whole school and through all the work of the gardening scholars.

#### EDUCATION AND THE DRAMA.

Mr. George Alexander, the well-known actor, presided at one of the meetings of the London County Council

Conference, and in his opening speech dealt with the teaching of literature and history. He maintained there is hardly a more important instrument of teaching than the inducing of children to project themselves into the characters set before them. In doing this we are appealing to one of the strongest instincts which children possess, and that original and almost universal instinct can be guided to the appreciation of good literature and drama to an extent not yet realised. Teaching by that method has the advantage of liveliness. Dulness is the curse of life, and dull teaching makes dull children. A tale told in dramatic form has a far better chance than a mere narrative of being lively and stimulating. Drama brings out the clash of characters which is the human interest in most events, and, above all, it enables one to see in the mind's eye how men look and speak and how things happen. None can, he said, deny the advantage to a child of projecting himself into the part of a hero and feeling within himself, however imperfectly and briefly, the emotions which prompted the fairest deeds in history. Then, too, the plan involves a great deal of elocution. Few exercises strengthen the body more surely than reading or reciting aloud, provided that the voice is produced in the right and natural way. In acting, too, there is more than speech, and a natural and graceful carriage of the body and free and appropriate gestures have the effect of dancing and fencing in strengthening the whole physique. Why should teaching, whether in dramatic form or otherwise, be confined to the dead and the past to the exclusion of the living and the present? One answer to that question is that time has judged the dead, and therefore the teacher is on safe ground; whereas there are different opinions about the living, and the teacher's opinion may be wrong. That is a difficulty; but, admitting that it is right and necessary to form taste on classical models, why should the works of living writers be ignored in the schools? Surely the pupil should be put into a right way of reading and appreciating his contemporaries.

#### PICTORIAL AIDS IN TEACHING.

The concluding day of the London County Council Conference was taken up in discussing a number of educational experiments. A paper by Mr. Thomas, of the Rotherfield Street School, London, enumerated the advantages of pictorial aids in the teaching of geography and history. The pictures on which he chiefly relies are those illustrating routes, commercial centres, seaports, productions, imports, and the industries of the British Dominions and other countries. He claims for the pictorial style of teaching that it is the best means of primary education. Children are passionately fond of pictures, and this method of instruction not only secures the attention of children, but supplies their mental faculties with appropriate links of association. Children read pictures as adults read books, and by means of models and pictorial representations, clearer, deeper, and more lasting impressions are formed in the minds of children than can be obtained by the ordinary methods of giving such lessons. The pictorial method also tends to cultivate habits of observation which should be strongly developed in children. The chief aim of his scheme is to implant knowledge by means of pleasant instruction in order to assist in giving the children an insight into the great industries of their own and other countries, and at the same time to give them an intelligent knowledge of the world, so as to show how, as one country comes to understand another by means of the interchange of commerce, international enmity gives place to peaceful rivalry. In

order to illustrate the necessity of an immense mercantile navy for the maintenance of our commercial supremacy and of a strong navy for its protection, pictures were exhibited of some of the great liners and also of battle-ships, cruisers, gunboats, &c. Then, further, in order to show how it is necessary to protect our ships, not only against interference by foreign Powers, but, so far as possible, against the perils of the deep, there were charts and illustrations of lighthouses, lightships, buoys, &c. This association of pleasure with instruction is the finest incentive to attention, and, in that way, to the gaining of the knowledge which the teacher is most anxious to impart.

### THE VALUE OF HISTORICAL STUDIES IN EDUCATION.

PROF. M. E. SADLER, addressing the annual meeting of the Historical Association on January 6th upon "The Value of Historical Studies to Administrators of English Education," said that a case might be made out against embarrassing the mind of administrator or teacher with any systematic knowledge of English educational history. Why cumber one's mind (it may be argued) with the clog of tradition? Why blunt one's fresh energies by too much knowledge of the hard knots of our old educational disputes? Let the dead bury their dead. In education, as in art, we have our post-impressionists—Tolstoy and Dewey were the counterparts of Van Goch and Gauguin. The educational post-impressionist longs for a fresh start, free from the entanglements of the past; he is eager for a child-like directness of self-expression without concern for the canons of academic style or for the prudent counsels of compromise. "In art," said Gauguin, "everyone must be either a revolutionary or a plagiarist." In education, Tolstoy replied, you must take your choice between *naïve* experiment and a crippling tradition. The educational post-impressionist played a useful part as critic and innovator. Succeed or fail as he might in the actual practice of his art, he stirred the waters, and by challenging the principles of our action shook us out of complacent routine.

The more education falls under the control of the State, the more valuable will be these eruptions of savage criticism, these returns to a new view of the aims and methods of teaching. But so immense is the weight of custom in education that there is little fear of the victory of the anarchist.

In England, however, the study of our educational history, so far from plunging us deeper into the ruts of routine, may encourage boldness of action by disclosing the number of great opportunities which we have missed through lack of courage to venture on prompt and penetrating reform. By charting the channel among many perilous shallows, history helps the statesman and the administrator to steer his ship safely to port. Some of the most disastrous shipwrecks in our educational policy have been due to ignorance of certain permanent tendencies in English thought and life, an ignorance which a closer study of history would have partly dispelled.

But the educational history of every country, and not least that of England, must be studied in close connection with the history of our economic and political developments and of movements in our philosophical and religious thought. The isolated treatment of educational events throws them into wrong perspective and deprives them of their deepest significance. The later educational history of England cannot be understood without reference to that of Scotland, Ireland, and Wales, nor any part of it with-

out consideration of the influence of foreign ideas and of foreign precedents. But it has a marked character of its own.

In education, England is at once a museum, a laboratory, and a conglomerate of half-conflicting ideals. Our educational history shows how persistently we have suffered from dilatoriness in public action, from want of scientific inquiry, from failure to combine the official action of State authorities with the organised services of volunteers, and from the frittering away of time and money through lack of co-ordination of effort. But it also discloses an inspiring record of devoted personal service, a shrewd conservatism, an instinct for continuity, and a sense of the value of well-defined social groups as providing an educational environment which leaves its stamp upon principle and character.

At the meeting of the association on January 7th an interesting discussion took place on the formulation of a policy with regard to the place that should be taken by historical teaching in various types of school. The association is convinced that, though much progress has been made in recent years, the teaching of history is still often unsatisfactory, especially in certain types of boys' schools. It was generally agreed that in all schools of sufficient size there should be, at any rate, one specialist qualified to supervise the history teaching of the school, and that the history lessons should only be entrusted to those who are competent and interested in such work. It was also further agreed that all school-leaving, matriculation, and professional entrance examinations should include as a compulsory subject the outlines of British history.

### ASSOCIATION OF PUBLIC SCHOOL SCIENCE MASTERS.

SIR RAY LANKESTER, F.R.S., in his presidential address to the Association of Public School Science Masters, took for his subject "Compulsory Science *versus* Compulsory Greek," and managed to treat this well-worn topic in an original manner. After a brief survey of his own school days, when a "general education" consisted of Latin, Greek, a little mathematics and less French, he warned the association against the "unwarranted assumption" that he advocated the exclusive possession of the educational field by natural science; he was quite unable to admit there was any difficulty in assigning a reasonable time to the study of this subject as well as allowing an equally reasonable time to the study of ancient and modern literature and languages and to mathematics. Those educationists who were in favour of compulsory Greek professed a great admiration for the wisdom of the ancient Greek teachers, and yet these did not educate their pupils by making them study the more ancient Egyptian hieroglyphics nor the Assyrian cuneiform text; instead of this they encouraged them to read and learn by heart the writings of their own poets and philosophers, and to study the natural science of the day. There could be no doubt that the modern conception of a classical education was the outcome of what had at first been an education based upon a utilitarian ideal; Latin used to be studied in order that the Vulgate, the lives of saints, &c., might be read, whilst the only available sources of scientific knowledge were through an acquaintance with Greek and Latin; even within his own memory a paper upon Aristotle used to be called a science paper. To-day, however, when the study of Greek is no longer a study of science, but a study of words, its position as a compulsory item in a general education should be transferred to natural science.

There is probably no profession which may be approached by so many avenues as that of medicine, and since few schoolmasters, and still fewer medical men, are able to give the necessary information to a student, Mr. A. Vassall, of Harrow, deserves the thanks of all teachers for the trouble he has taken to collect and analyse the facts. In his paper upon "The Education of Medical Students," he pointed out that the General Medical Council had, by its action in refusing to recognise public schools as places in which elementary science could be studied by would-be medical students, placed itself upon the horns of a dilemma from which there was no escape; either the medical student need do no pure science or the first examination was not professional in its nature. At the close of a very interesting paper the following resolution was proposed by Mr. Douglas Berridge in the name of the committee: "That a subcommittee, consisting of Messrs. Vassall (Harrow), Hill (Eton), and Gardiner (Cheltenham), be appointed to consider what steps, if any, should be taken to safeguard the education whilst at school of boys wishing to become medical students, in view of the attitude of the General Medical Council." The discussion upon the teaching of English in connection with science lessons, opened by Mr. Eggar (Eton) and Mr. Lewis (Oundle), was full of interest, but, at the same time, rather disappointing in its results, there being a tendency on the part of most of the speakers to suggest that there was something wrong with instruction given by their colleagues, and an unwillingness to point out the various ways in which the science master himself might encourage the writing of good English by the method he adopted of correcting laboratory notes; Mr. Hedley (Cheltenham), however, mentioned that half his time in the laboratory was spent in an attempt to make his boys express in good English what they had observed.

The afternoon of the second day of the meeting of the Association of Public School Science Masters was occupied with an interesting discussion upon the use of the wave theory and of rays in the teaching of light. Mr. Talbot (Harrow) showed some beautiful experiments with the ripple tank, and, having stated that he used this apparatus in even elementary teaching, maintained that the wave theory was not only the most natural, but also the simplest manner in which to introduce a beginner to the study of optics. Mr. Mott (Giggleswick), on the other hand, described how, by means of a lamp and a piece of grooved wood, he obtained "rays" with which the pupil could work in a more natural manner than when he was confined to the use of pins. An interesting discussion followed; and the situation was well summed up by Mr. Siddons, who said that whilst the wave theory opened up the romance of light in a manner impossible when rays were employed, the latter seemed more tangible to the average beginner.

## THE WELSH DEPARTMENT REPORT ON COUNTY SCHOOLS.

THE reply to the report on these schools, issued by the Welsh Department of the Board of Education, has been made by issuing a revised edition of the address of the president of the Welsh County Schools Association of Headmasters at the annual meeting at Shrewsbury in October, 1910.

The address declares that in its last report the Board of Education broke away from its most honourable traditions. "With its three or four years' experience it has ventured to bring charges against the Welsh education

system in its entirety, against the great representative body that inspects and examines the schools, against those responsible for each individual school, the heads of schools, the assistant staff, even against the intelligence of the pupils, charges so serious and sweeping that, in the eyes of the general public and of all that do not know the true state of affairs, the Welsh schools appear condemned as utter failures unworthy of the confidence of the nation."

It will be remembered that the report in question was founded on the reports made by the examiners appointed by, and reporting to (in the first instance), the Central Welsh Board. The examiners' reports are then forwarded to the Welsh Department of the Board of Education. The president's address had reference to the report of the Welsh Department, made on the study of the reports of the examiners of the Central Welsh Board. The complaint is that the Welsh Department report selected all the unfavourable criticisms, even in details, but did not quote summaries of the examiners themselves as a whole, and that in the majority of cases the adverse criticisms quoted are divorced from their contexts in such a way as to convey an impression quite different from the intention of the examiners. The charge that the schools produce "wooden and unintelligent pupils" is resented as "untrue," and, it is added, is "nowhere to be found in the reports of the examiners of the Central Welsh Board."

The president scores a point when he remarks that the Board of Education insists that no report made by the Board shall be published except in its entirety, and shows that the Board might well have required of itself in this matter what it requires from others. The "prejudiced selections" are so marked that "examiners have protested in the public Press against the distorted use of their remarks." The Welsh Department report is further criticised for "incorrect statements."

With especial pride, the president directs attention to the achievements of the Welsh county schools. The criticised report states that "the schools continue to turn out young men and women possessing a mechanical knowledge of facts, useless for all purposes except examination purposes, but lacking in intellectual curiosity, in originality, in readiness of resource." The president produces an account of pupils' after-careers to rebut such a charge. The schools were established fifteen years ago. Allowing seven or eight years for their work to mature, during the later period the results are shown to be noteworthy: 675 pupils, of sixty-seven schools, are known to have graduated in various universities, 112 with first-class honours, 249 with second-class honours. Of these, 90 graduated in Oxford or Cambridge. Practically all the entrance scholarships at the three University Colleges, recently, have been taken by pupils from Welsh county schools. The "lacking in intellectual curiosity" cannot be applied to such distinctions as the following: fellowships and research studentships in the University of Wales, the Oliver Lodge fellowship for scientific research, several Gilchrist scholarships, several 1851 Exhibition research scholarships, the Muspratt, the Whitworth, the Osborne Morgan post-graduate research scholarships, several medical fellowships, and the Coutts Trotter studentship of £250 a year at Trinity College, &c.

There can, indeed, be no question as to the reasonable quantity of distinctions won, and none as to a fair number of well-qualified professional men, who have come from the county schools.

The Welsh Department report speaks disparagingly of the teachers. They "do not make a study of their pupils and teach them." The president protests that "no body

of teachers have kept themselves more in touch with the most modern methods in education." The report complains that all the schools have become schools of the same type. The answer is that the Secondary School Regulations of the Board of Education itself fixed, up to two years ago, "the exact subjects each school should teach, and even laid down the exact number of hours."

It will thus be seen how strong is the case of the schools against the report of the Welsh Department when it launches out into severe criticisms founded on phrases and details taken from their context. It is clear that whatever help and good the Welsh Department meant to do in the way of advice and criticism to the teachers of the Welsh county schools, it has gone the wrong way about it, and has provoked keen resentment at what is felt to be unfair treatment.

### HISTORY AND CURRENT EVENTS.

THERE has lately died M. Henri Dunant, the founder of the International Red Cross Association. His life was influenced, he used to say, by Mrs. Beecher Stowe, Miss Nightingale, and Mrs. Elizabeth Fry. That reminds us that it was shortly after the middle of the nineteenth century that efforts were being made to alleviate the horrors of war. And now, as these pioneers are passing away, we are able to chronicle another advance towards the diminution of the possibilities of international war. President Taft, of the United States of America, recently advocated the abolition of the usual exception in arbitration treaties, which withholds matters of national honour from submission to arbitral courts. We commend his speech to the careful attention of our readers, and confine ourselves to adding that Mr. Andrew Carnegie has offered £2,000,000 to help on the cause. In these days, we suppose, money is necessary for any movement, but we cannot help wondering why so large a sum is necessary to convert the world to brotherly love, or at least to treating one another as honourable men.

LAST autumn the German Emperor made many people angry with a speech in which he spoke of his Divine right to rule, and we in the British Isles either sympathised with our German friends or smiled at the "old-worldliness" of our neighbours' ruler. The matter was made the subject of debate in the German Reichstag, and there it was pointed out, in reply, that William II. had spoken as Prussian King, not as German Emperor, and that therefore the speech was no business of the Reichstag. It is, no doubt, troublesome to have dealings with Pooh-Bah, but the head of the German Confederation is not by any means the first instance of such multiplex personalities. An ancestor of his, who is not unknown to fame, once, at least, had occasion to remark of a certain relative of his who was both King of Great Britain, Duke of Hanover, and elector and arch-treasurer of the Holy Roman Empire, "Is the King of England one person or two?"

SOME two years ago we spoke of the advertisement of the railway companies which announced that Japan could be reached in a little more than a fortnight, and asked what Columbus or his contemporaries would have thought of it. That offer of our travelling agencies was made possible because the Russian Empire wanted to transport its materials of war to the Far East, and now that war is over for the present, more peaceful folk may use the means of travel thus provided. We are reminded of this previous paragraph by the announcement in the papers

that there are serious thoughts of so connecting existing railway lines that it will before long be possible to travel by rail continuously from (say) Calais to Bombay. This enterprise, which apparently is likely to be carried out, does not seem to be intended for war purposes (indeed, the reason for the delay in launching the scheme was largely military); and so the world is gradually diminishing; more than ever men "will go to and fro, and knowledge will be increased."

If history is a "fiction agreed upon," and if all the heroes of the past are but creatures of our imagination, why should we not add to them the creations of the poets and of that popular poetry which is known as folk-lore. Probably to all but a few "experts" Charlemagne is as real a person with his "knights" and his Roland of Roncesvalles as Karl the Great, the saviour of society in the end of the eighth century. And Arthur and his Round Table is, in Malory or Tennyson, far more a reality than the possible British hero who, unnamed and doubtful, made the Anglo-Saxon conquest more difficult than it would have been without him. Why, then, should we wonder that the rector of Merton, in Norfolk, should appeal for funds for the restoration of his church in the name of the Babes in the Wood, or that the people of Verona should be erecting a monument to Shakespeare near "the tomb of Juliet"? All that most of us know about the politics of Italian cities is drawn from the opening scene of Shakespeare's play or the pages of "Romola."

### ITEMS OF INTEREST.

#### GENERAL.

THE Right Rev. J. E. C. Weldon, Dean of Manchester, who was formerly headmaster of Harrow School, has accepted the presidency of the Educational Science Section of the British Association for the meeting to be held at Portsmouth during the first week of September next.

MR. T. E. PAGE is one of three candidates for the vacancy in the representation of Cambridge University in the House of Commons caused by the lamented death of Mr. S. H. Butcher. The return of Mr. Page to Parliament would be welcomed by all who have at heart the welfare of secondary education. His intimate knowledge of the needs of secondary schools and his persuasive eloquence would secure for him the attention of the House and a fuller recognition of the national value of educational work.

THE annual general meeting of the Association of Headmasters was held at the Guildhall on January 10th and 11th. The headmasters were welcomed by the Lord Mayor, and the presidential address was delivered by Mr. J. E. King, headmaster of Clifton College. Mr. King dealt with French and German criticism of the schools in France and Germany. He pointed out that it is interesting to take note of foreign criticism of foreign schools, because so often there is a tendency in the critics here, in deprecating English schools, to imply that all is for the best in all possible worlds in education when once the Channel is crossed. But there, too, they have difficulties in the settlement of educational problems and in the balancing of older and newer studies in the curricula. Mr. King did not imply that there are not faults and failings and deficiencies in English schools, but he suggested that other countries, too, think they have grounds of complaint. During the meeting many resolutions were adopted. Among them may be mentioned: "That, in view

of the fact that the one body which objected to the Teachers' Registration Council proposed by the conference convened by the Federal Council in November, 1909, has now withdrawn its objection, this association is of opinion that there is no justification for any further delay on the part of the Board of Education in establishing the Teachers' Registration Council contemplated by the Education (Administrative Provisions) Act, 1907." "That it be referred to the council to deal with the question of Bible teaching, and, if possible, to co-operate with the committee appointed by the Headmasters' Conference for the purpose." "That, in view of recent developments in the teaching of the three chief modern languages, English, French, and German, some encouragement should be offered to students by increasing the number of entrance scholarships in these branches of study."

THE annual meetings of the Association of Assistant-masters in Secondary Schools were held on January 11th to 13th at University College School, Hampstead. Mr. A. A. Somerville (Eton) was elected president for 1911. The retiring president, Mr. F. Charles (Strand School), in presenting the annual report, delivered an address, in which he urged that in the world of education at the present time there are four subjects of first importance, and they are indissolubly connected and inseparably bound together. Of at least three of them much has been heard; the fourth is apt to be taken for granted by some and ignored by others; the subjects are salaries, pensions, the register, and qualifications. Among the resolutions adopted may be mentioned: "That, in the opinion of this association, it is important that, in any scheme of university organisation, nothing be done to discourage pupils from remaining in a secondary school until the age of eighteen. This association would also deeply regret any lowering of the age at which candidates are eligible for entrance to Woolwich and Sandhurst." "That this association considers that it is essential to the efficiency of secondary education that the Board of Education forthwith proceed to establish an effective register and a national scheme of pensions for secondary teachers." "That this association considers that the Board should refuse to recognise as efficient any school which does not provide an adequate scale of salaries and reasonable security of tenure." "That this association considers as grossly unjust the fact that, in requiring 'training' as a qualification for certain appointments in secondary schools, the Board of Education does not, apparently, consider experience of a satisfactory nature as the equivalent of training, and thereby debars the majority of assistant-masters already in secondary schools from applying for such posts, there being when they entered the profession no means of obtaining college training, and requests the Board to insert in their new Regulations for Secondary Schools the definite pronouncement that service of a satisfactory nature is regarded as the equivalent of training in one of the institutions recognised by the Board under the Regulations for the Training of Teachers in Secondary Schools."

THE annual meeting of the Association of Assistant-mistresses was held in London on January 14th. The president, Miss Lees (Clapham High School), in her address said that the association has become affiliated with the National Union of Women Workers, and has extended its relations with local education authorities. She recently represented the association on the subcommittee appointed by the London University to consider the question of

domestic science. The association is anxious that nothing shall interfere with well-established and efficient science courses now carried on in girls' schools; it fears too early specialisation, though it also wants some closer connection between the school life and the future life of the girl, and it is agreed that at a certain stage in the girl's career she should have an opportunity of applying her scientific knowledge to home life. The association has this year shown its sympathy with the aims of the Central Bureau for the Employment of Women by subscribing, and also by allowing the president's name to appear as a member of the consultative committee of the Students' Careers Association in connection with the bureau. She commended the proposal to publish a directory of school-mistresses. Miss C. Laurie (Cheltenham Ladies' College) read a paper on "The Advantages and Disadvantages of Teachers being Civil Servants." Some discussion followed, in which the necessity of preserving the freedom of teachers and the variety of type of schools was insisted upon. Prof. Adams gave an address on "The Professional Spirit."

A GENERAL meeting of the Classical Association was held in Liverpool on January 6th. The Bishop of Lincoln was elected president of the association for the present year. The principal subject of discussion was the report of the joint committee on grammatical terminology, with its forty-six recommendations for the simplification and unification of the terminologies and classifications employed in the grammar of different languages. The presidential address was delivered by Sir Archibald Geikie, president of the Royal Society, on "The Love of Nature among the Romans." He chose his subject, he said, as a compromise between the classics and at least one aspect of natural science. Probably no part of Europe was more fitted to awaken national enthusiasm and the patriotic spirit than Italy. Appreciation of their country's charms was one of the grounds of the national sentiment of patriotism for which the Romans were distinguished. The Romans showed their love of nature in the use of flowers at festivals and for the decoration of their houses. The following resolution was, after some discussion, passed by a large majority: That, in the opinion of the Classical Association, where a choice of subjects exists at a matriculation examination candidates should be required to select their subjects with a view to the Faculties to which they seek admission, instead of being left to make their selection according to their own discretion. The association holds that such a differentiation of Faculties would strengthen the position of classics in Faculties of Arts, and would make for efficiency in all departments of university work.

THE annual general meeting of the Modern Language Association was held on January 10th and 11th. The report for 1910 showed that the membership now numbers 1,025. The number of exchanges arranged with families abroad in 1910 showed an increase. Up to the end of September the total number of exchanges was forty-one, of which nine were with Germans. The report stated that letters received from parents since the return of their children showed great appreciation of the scheme. One of the important features of the year has been the foundation of branches of the association, of which there are now six, three being in London, and the others in Yorkshire, Birmingham, and Bristol. Mr. J. L. Paton was elected president for 1911. The presidential address was delivered by Prof. Karl Breul. Incidentally, he said negotiations are now pending between the association and the Universi-

ties of Oxford, Cambridge, and London for the institution of special teachers' examinations, and the issue of certificates to those who have not had the advantage of university training. It is hoped that these negotiations will be brought to a successful conclusion this year. Towards the conclusion of his address he remarked that he had long advocated the establishment of what he calls a German House in London—a great institute to serve as a centre of study and information for German students and teachers in England. He has another scheme in view—to establish at Berlin and Paris British institutes for British teachers and students of German and French. Such institutions will be in a position to do work such as no other agency can possibly do. Later, the report of the committee on external school examinations, containing recommendations as to tests in junior and senior stage examinations, was discussed by the meeting. During the second day Miss L. H. Althaus read a paper on the means of training available for modern language teachers in phonetics, and Prof. Brunot gave an address on "Comment la langue française classique a été l'image de la société du XVII<sup>e</sup> siècle." The report of the recent conference on grammatical terminology was discussed in detail.

THE annual meeting of the Mathematical Association was held on January 11th at the London Day Training College. The retiring president, Prof. H. H. Turner, F.R.S., in his opening address dwelt on some mathematical methods applied recently in astronomical research, with particular reference to Halley's comet and the satellites of Jupiter. Mr. G. Goodwill (Carlisle) showed some simple, but elegant, apparatus for use in the teaching of elementary kinetics. Canon J. M. Wilson, one of the founders some forty years ago of the Mathematical Association, then known as the Association for the Improvement of Geometrical Teaching, described two fragments of geometrical treatises found in Worcester Cathedral library. Messrs. C. V. Durell (Winchester) and A. W. Siddons (Harrow) introduced discussions on the teaching of arithmetic and algebra in secondary schools. The suggested reforms aim at securing liberty for the teacher to cut out uninteresting, and perhaps unnecessary, work with a view to an early introduction of elementary solid geometry, numerical trigonometry, mechanics, and easy calculus. Many members took part in the discussion, and it appeared that most speakers were in favour of the general principles of reform, though some considered that the detailed suggestions might prove to be of too drastic a character. Prof. E. W. Hobson, F.R.S., was elected president for the current year.

THE Geographical Association held its annual meeting at the London School of Economics on January 14th. In the morning a paper was read by Miss von Wyss on "Geography at Seven Years," in which it was pointed out that the matters most interesting to children were those farthest removed from their everyday life; accounts were given of the experiences of children in a wood to which they were taken, and of the use made of a very large and realistic model into which paper imitations of various animals were introduced. This paper was followed by accounts of map-making of the neighbourhood carried on at secondary schools, by Messrs. Beames (Bristol) and Fairgrieve (Hampstead), who exhibited simple apparatus which they had devised. Mr. J. F. Unstead then introduced a resolution: "That a training in geography, independent of any other subject, should form part of the course of all students in training colleges for teachers in

elementary schools, those students who take 'degree courses' being excepted." He pointed out that students necessarily entered the training colleges unequipped as teachers in geography, and that in the colleges the present regulations of the Board of Education made geography in most cases subsidiary to history, with the result that very few teachers from these colleges had any adequate training in geography, although it was obligatory upon the vast majority of them to teach the subject. The resolution was supported by several speakers, and unanimously passed by the meeting.

In the afternoon session the hon. secretary (Prof. Herbertson) read the annual report, the adoption of which was moved by Mr. Mackinder. The president, Mr. D. W. Freshfield, then gave his address describing the growth of the association, which had in many ways endeavoured to improve the teaching of geography and help teachers, particularly by the periodical issue of the *Geographical Teacher*. The association, founded in 1894, now numbers more than 900 members. Mr. George Montagu followed with a lecture on "The Highways of England and Wales, Past and Present, and their Relationship to Geographical Conditions." Particulars of the association and the advantages offered to members will be sent on application to the hon. correspondence secretary, Mr. J. F. Unstead, 39, Greenholm Road, Eltham.

THE annual meeting of the Private Schools' Association was held on January 4th in London. Dr. F. A. Sibley, of Stonehouse, was elected president for the ensuing year, and during the course of the meeting delivered his presidential address. He said that State control has almost destroyed the autonomy of secondary education, and is now rapidly crushing out private initiative and assuming entire control of the whole educational system. Because England is flooded with talk and with literature on education, because we are invaded by a host of officials and witness an ever-increasing expenditure, because the land is being covered with educational palaces and mansions, the public are deceived into the idea that a tremendous advance is really being made. Noise and bustle, bricks and mortar, are no doubt evidence of activity and of advance, but that the advance is in the least commensurate with these evidences of it may be doubted, and if to secure this advance we are sacrificing liberty and individuality, then these educational palaces will merely mark for future generations an age of educational and national decadence. The chief discussion centred round the subject of co-education. It was opened by Mr. J. Naughton, of Harrogate, who spoke on the dangers of co-education, and urged that to place the sexes on an equality would be greatly to the disadvantage of the weaker in the struggle for existence. Subsequent speeches revealed a great diversity of opinion. One speaker spoke of co-education as one of the silly dreams of the United States people, who are young as a nation and try to forget history, and he said that when they got more sense they would throw over their new theories and go back to the ways of their grandfathers. Another thought women owe a great deal to the Friends' Schools, which educate boys and girls together, and that the women of the Quaker body are of the finest and best in the land.

A HOLIDAY course for foreigners will be carried on at the University of London in the summer of 1911, and will, as in former years, be under the direction of Prof. Walter Rippmann. The course will last from July 17th to August 11th. The number of students will be strictly limited, in order that they may receive that individual



attention which is necessary to make a stay in London profitable; students are therefore advised to make early application, which should be written in English. Tickets will be allotted as applications are received, and will be issued on payment of the fee. The fee is £3, and gives the right to attend the classes for reading and conversation. A small number of students not taking these classes will be admitted at a fee of £1 10s. Students may present themselves for examination in written and oral English. The standard required for distinction is high, and a good certificate issued in connection with the London University holiday course is considered to be of real value in the teaching profession. Students who propose to attend the holiday course are recommended to read carefully the poems of Tennyson and Browning, together with Stopford Brooke's "Tennyson: his Art and Relation to Modern Life" (Pitman) and Symons's "Introduction to Browning" (Dent), and to study Prof. Rippmann's "Sounds of Spoken English, with Specimens" (Dent), or at least to make themselves familiar with the symbols of the International Phonetic Association.

THE Visual Instruction Committee appointed by the Secretary of State for the Colonies has issued the first book of a series of lantern lectures on the Colonies and India, for which a special fund was raised by a committee of ladies presided over by Lady Dudley, and under the patronage of her Majesty the Queen, then Princess of Wales. The present book consists of eight lectures on India, written for the committee by Mr. H. J. Mackinder, and is illustrated by 480 lantern-slides. The slides, together with the book in its form for teaching purposes, may be bought from Messrs. Newton and Co., 3, Fleet Street, E.C., from whom particulars can be obtained on application. A cheap illustrated edition of the book has been published by Messrs. George Philip and Son, 32, Fleet Street, E.C. The committee are making arrangements for sets of lectures on Canada, Australasia, and the British possessions in the Mediterranean, and further east other than India, for all of which they have the material in hand, including the illustrations taken or collected on the spot by Mr. Hugh Fisher, an artist sent out for the purpose.

It is interesting, as an indication of the close connection existing between the departments of science in the German universities and the great industries on which the importance of Germany so largely depends, to record that the University of Marburg has just conferred the degree of Doctor, *honoris causa*, on Mr. Ernest Leitz, of Wetzlar, the head of the famous Leitz Optical and Mechanical Works. We are glad to know that our own universities honour great manufacturers in a similar way from time to time.

THE annual meeting of the Moral Education League is to be held on February 10th at Essex Hall, Essex Street, Strand, London. The business meeting of members will be at 7 p.m. A public meeting will follow at 8 p.m., when Prof. C. Lloyd Morgan, F.R.S., will give an address entitled "The Garden of Ethics."

#### SCOTTISH.

THE biennial Congress of the Scottish Class Teachers was held during the New Year recess in Dundee. The proceedings, which were presided over by Mr. Harry Gant, Saltcoats, opened with an official welcome by Lord Provost Urquhart and the chairman of the School Board. The president in his opening address took as his subject "The Primary-school Curriculum." The aim of the

primary school, he said, is to lay a sound foundation of knowledge, limited in extent, yet thorough so far as it goes, upon which the higher grades of schools can build. For this purpose, an intensive and liberal study of the mother tongue is necessary. Miss Fish, in the course of an address on "The Unemployed Teacher," said that unemployment among teachers is not so general in Scotland as in England, but large numbers of students who left the training college last June are still out of employment. These numbers are bound to increase during the next few years, with disastrous effect upon the teaching profession and with serious hardship to individual students. Mr. Alex. Mackay, Leith, speaking on the subject of "Higher Grade Schools," said that there is something radically wrong when, out of the 8,000 pupils starting a secondary-school course, only 4,000 survive in the third year. This represents a grave educational "wastage." The explanation is that entrance to secondary education is made too easy. The qualifying examination is by no means adequate as a "capacity meter." What is needed is a special examination for all desiring entrance to secondary schools—an examination that will not be so much a test of actual knowledge as of promise and potentiality.

A DEPUTATION from the Edinburgh Provincial Committee which visited the principal halls of residence in England has reported strongly in favour of establishing hostels in connection with the Scottish training colleges. When the report came before the Provincial Committee, an interesting discussion took place chiefly on the question whether residence should be compulsory on all students who did not reside with their parents. In the end it was agreed to approve the establishment of hostels and to adopt the principle of compulsory residence in them for all outside students. Aberdeen Provincial Committee has come to a similar decision, and Glasgow is expected to follow. The committees will probably find considerable difficulty in carrying out their recommendations. Boarding-houses are anathema to Scots of every age and sex, and it remains to be seen whether provincial committees can overcome a national prejudice by a stroke of the pen.

At a meeting of Glasgow University Court the principal intimated that the Senate wished an honours course started in geography. The Court agreed to prepare an ordinance for this purpose, and to submit it to the Senate and the General Council for their approval. Petitions were also submitted from the Secondary Education Association asking that secondary-school teachers should be represented on any joint board established for the conduct of the university preliminary examination, and that the bursary competitions should be fixed for a date prior to the long vacation in order to give candidates the benefit of an unbroken summer holiday before commencing the winter work.

THE most notable features in the newly issued report of Edinburgh University are the continued increase in the number of students and the number of new lectureships created. During the past year the total number of matriculated students was 3,368, including 624 women students. Of these, 1,300 were enrolled in the Faculty of Arts, 382 in the Faculty of Science, 43 in Divinity, 251 in Law, and 1,370 (including 21 women) in Medicine. This represents an increase of 58 over the previous year's returns, and constitutes a record enrolment. Of the students in medicine, 45 per cent. belonged to Scotland, 19 per cent. to England, 4 per cent. to Ireland, 22 per cent. to India and the Colonies, and 2 per cent. to

foreign countries. These figures prove that the University continues to maintain its world-wide reputation as a medical school.

THE teachers' superannuation scheme under section 14 of the Education (Scotland) Act of 1908 has now, it appears, been completely drafted, and only awaits the Cabinet's approval before being made public. After publication, teachers and managers are given three months for consideration and criticism, and all suggestions for amendment are to be forwarded to the Education Department within that time. Thereafter, the Department will prepare the scheme in its final form, and submit it to both Houses of Parliament for a period of three months. Then, provided no objection has been taken to its terms and condition, the King will, by Order in Council, make it operative on a given date.

INTIMATION is made that the written examinations for leaving and intermediate certificates will begin on April 4th. Managers are reminded that Forms A. 22 and A. 104, containing a list of all candidates for certificates, should be in the hands of the Department on or before March 1st.

IN connection with the forthcoming School Board elections, the Department has addressed a circular letter to all School Boards and returning officers impressing on them the necessity of keeping the expenses within the lowest possible limits. A maximum scale of charges is laid down for the guidance of returning officers, who are told that unnecessary or exorbitant expenses will have to be made good at their own charge. Form 77 T, containing the General Order regulating the statutory election of School Boards, should be in the hands of all connected with the elections.

### IRISH.

THE school grant for the year 1909-10 paid by the Intermediate Board has been calculated at the following rate as compared with those for the previous year and for 1902-3 :

| For each pass :        | 1909-10 |    |   | 1908-9 |    |   | 1902-3 |    |   |
|------------------------|---------|----|---|--------|----|---|--------|----|---|
| Preparatory Grade ...  | £3      | 4  | 4 | £3     | 10 | 0 | £5     | 16 | 0 |
| Junior           " ... | 6       | 8  | 8 | 7      | 0  | 0 | 8      | 14 | 0 |
| Middle         " ...   | 9       | 13 | 0 | 10     | 10 | 0 | 17     | 8  | 0 |
| Senior         " ...   | 14      | 9  | 6 | 15     | 15 | 0 | 26     | 2  | 0 |

For each pass with honours :

|                    |    |    |   |    |    |   |    |   |   |
|--------------------|----|----|---|----|----|---|----|---|---|
| Junior Grade ...   | 9  | 13 | 0 | 10 | 10 | 0 | 13 | 1 | 0 |
| Middle       " ... | 14 | 9  | 6 | 15 | 15 | 0 | 26 | 2 | 0 |
| Senior       " ... | 21 | 14 | 3 | 23 | 12 | 6 | 39 | 3 | 0 |

These figures show a decline for 1910 as compared with 1909 of more than 8 per cent., and as compared with 1903 of nearly 45 per cent. This is clearly a hardship and a handicap to the schools, but this is not all. Intermediate finance has now reached a serious crisis, as even the rate paid for 1910 has only been possible by drawing on a reserve fund, which had been accumulated out of surplus income in former years, to the amount of £29,925 17s. 6d. This reserve fund is now less than £25,000, so that a similar proceeding for the present year would be impossible.

THE Intermediate Board has in consequence felt compelled to issue a statement as to the financial position. The income is derived from two sources. The first is the interest on the sum of £1,000,000 which was allocated to the Board from the fund of the dis-established Irish Church. The annual income from this source is £30,898 17s. 8d. The second source of income is fluctuating. It consists of the surplus of the Irish share of what are known as the Whisky Duties, after £78,000 has been paid to the Commissioners of

National Education. This sum amounted to £71,400 in 1900, and has gradually fallen until it was £46,566 15s. 5d. in 1909 and £16,998 14s. 6d. in 1910. After the regular statutory payments had been made, there only remained £18,200 available for the school grant. This year the members of the Board have drawn upon the surplus to make good the deficiency, but "would not feel themselves justified in again drawing upon it in order to keep up the school grant to an amount in excess of the income at their disposal." Further, it is stated that they "had been given reason to expect that an equivalent would be provided by the Legislature from some other source for the revenue which they had lost. Unless this is done they will be unable to carry on the work entrusted to them by Parliament." Finally, "this falling off of income is especially regrettable in view of the additional responsibilities imposed on the Board by the Legislature. The cost of inspection has to be provided for, in addition to the expense of the annual pass examination; and unless further funds are provided it will not be possible for the Board to give effect to the provisions in the Irish Universities Act, 1908, by which they are empowered to grant exhibitions to students entering the Universities."

THINGS have therefore come to a climax with Irish intermediate education, but as the Chief Secretary has admitted the grievance, and the Chancellor of the Exchequer has also stated that something must be done, there is every reason to hope that there will be an improvement, even if not a satisfactory settlement, in the course of the present year.

THE Classical Association of Ireland has proposed to the Intermediate Board to offer a prize of £5 for the student who, in the preparatory grade, obtains the highest marks in Greek at the examination held next June. The Board has agreed to the prize being given, and has stated that it is in complete sympathy with the efforts of the association to encourage the study of Greek. The prize is likely to become annual. The annual meeting of the association will be held in the theatre of the Royal Dublin Society on Thursday, February 9th, when the president for 1911, W. J. M. Starkie, Litt.D., Resident Commissioner of National Education, will deliver his inaugural address on "The Function and Aims of Early Attic Comedy."

THE Department announces that it will conduct local examinations in subjects of science and art on behalf of the English Board of Education in May and June, and has issued an examination time-table. Details of the examinations may be had on application to the offices of the department.

THE Dublin Commissioners appointed by the Irish Universities Act, 1908, have agreed to a scheme whereby the buildings of the late Royal University will be transferred to the University College, Dublin.

THE governing body of University College, Galway, has sent a request to the Civil Service Commissioners that the Irish language, with Welsh and Scotch Gaelic, should be added as optional subjects to the Civil Service programme of examinations. This action is taken on two grounds : (1) the great educational value of these languages, which are now leading subjects of university study, and (2) the frequent inconvenience to the public and the impairment of the public service in the districts where these languages are spoken, caused by the fact that Civil Service officials, such as old age pension officers, officials of the Congested Districts Board, &c., are often unacquainted with the vernacular of the people with whom they have to deal.

## WELSH.

THE Welsh National Museum authorities have approached the Cardiff Property and Markets Committee to obtain consent for the utilisation of the whole of the site granted for the actual building, and to ask the committee to provide an additional 15 feet on the north side of the proposed building. The concession was granted. The museum authorities further asked the Corporation to provide or rent to them a building in the quadrangle of the City Town Hall for the purpose of storing specimens. It was stated that the specimens secured for the national museum have been accumulating so rapidly that a new building must be secured, and it was desirable that the public should have the benefit of seeing these specimens while the permanent museum buildings were in course of erection. The city engineer was directed to report as to the probable cost of the building, and as to what would be a reasonable rent to pay.

AN interesting account of the Welsh settlement of emigrants to Patagonia was given recently by the Rev. D. Richards, chaplain and instructor to the Royal Navy, to the Carmarthen Cymmrodorion Society. Mr. Richards regarded the emigration of Welshmen to Patagonia in the period 1840-70 as the most important and interesting chapter in the history of the Principality. It was the momentous period of the renaissance of Welsh nationalism. The direct result of that movement was the Welsh colony, to which many elements contributed—politics, education, literature, and religion. Patagonia was sadly unsuitable. When the Welsh first settled it was a barren waste under the jurisdiction of no government, whilst ultimately it came under the Republic of Argentina, which claimed it without any right. Extensive schemes of investigation had been carried out. Emissaries were sent to Wales, and a further band of emigrants went out. In 1881 the Welsh colony there numbered about a thousand.

THE world never saw, said Mr. Richards, more energy and determination than was displayed by these Welsh colonists. They produced the best wheat in the world, but they had to encounter the galling deception and corruption of the Argentine officials, a fact more to be regretted since the Welsh colony could have planted the Union Jack in Patagonia in 1865, had they but realised it and not been hostile to Saxon rule. The Patagonian Welshmen were gradually losing their Cymric characteristics, for the sake of which they originally emigrated. The Republic made every effort to stamp out the Welsh spirit, and ruled out the teaching of Welsh in the schools. The dispersion of the Welshmen in Patagonia was leading to the elimination of Cymric feeling. Mr. Richards held that it was impossible to establish Welsh independence in any foreign country. He appealed to the Carmarthen Society to keep alive the best characteristics of the Welsh, and especially their ancient tongue. If it was to be kept alive, it was in Wales, and in Wales alone, that this was possible.

CARDIFF has to regret the loss of the services, by resignation, of Miss E. H. Young, headmistress of the Oral School for the Deaf at Howard Gardens. It was stated, as one would naturally suppose, that the work was most trying, and very high praise was given to the retiring headmistress, and a special letter was written by the Director of Education expressing the committee's full appreciation of the excellent services rendered. The successor was appointed at a commencing salary of £100,

whilst an assistant-mistress will be advertised for, for this most trying work, to begin at £70 a year.

THE school-attendance officers of the Holywell district subcommittee of the Flintshire Education Committee reported a sad account of some of the children. It was stated that, owing to the prevalence of bad weather, many of the children had been prevented from attending school, and there had been prevalent diphtheria, sore throat, and scarlet fever. One of the schools had been closed for several weeks on account of an epidemic of scarlet fever. Many of the Flint school children had only uppers of boots, with no soles, so that their feet were on the ground, and through poverty their parents could not buy them boots. The headmaster of the Flint National Schools had been kind enough to supply thirty of the worst cases with clogs. We are not told whether the headmaster was repaid for the outlay by the committee; but whether he was or not, we quite agree with one of the members that he deserved the thanks of the committee.

## AMERICAN SCHOOLS AND SCHOLARS.

(1) *Government by Influence and other Addresses.* By Elmer Ellsworth Brown, Commissioner of Education of the United States. 242 pp. (Longmans.) 5s. net.

(2) *Essays in Fallacy.* By Andrew Macphail. vi+359 pp. (Longmans.) 6s. net.

(3) *The American Rural School.* By H. W. Foght. xx+359 pp. (Macmillan.) 5s. net.

(4) *The Education of Women.* By Marion Talbot. ix+255 pp. (University of Chicago Press.) \$1 37c.

(5) *Columbia University Quarterly.*

(6) *Training of Teachers in England and Wales.* By Peter Sandiford. xiv+168 pp. (Teachers' College, Columbia University.) \$1 50c.

(7) *Training of Elementary School Teachers in Germany.* By I. L. Kandel. vii+137 pp. (Teachers' College, Columbia University.) \$1 50c.

(8) *French Secondary Schools.* By F. E. Farrington. xii+450 pp. (Longmans.) 7s. 6d. net.

THE Commissioner of Education in the United States has collected the various addresses which he has given during the three years of his service at the National Bureau, giving to his book the title of the first in the series—"Government by Influence" (1). They are all well worth reading, alike for their practical wisdom and the gentle modesty of their expression. Many of them are delivered as inaugural addresses to universities and to schools, and as such make their appeal to the general public rather than to teachers as such. The English reader will turn with greatest interest to those parts of the book which bring out peculiar features of American institutions. In the chapter entitled "Are we an Inventive People?" the author makes an interesting attempt to summarise what is native and original in their educational organisation. The non-sectarian elementary school for all classes, the American high school with its variety of courses, the American university with its combination of instruction and research, of cultural and technological courses, the summer school, the consolidated country school with provision for transportation of pupils, the American University President and Helen Keller! Against this record he places a list of unsolved problems the mere consciousness of which augurs well for the future. Commissioner Brown has a thoroughly human conception of the school. In his own words, "the school is largely concerned with the transformation of a playing child into a working man

with some of the play left in him." This sentiment admirably represents the spirit of the whole book, which it has been a pleasure to read.

Outsiders do not always agree even with such a modest estimate of American education as that of its chief commissioner. To Mr. Macphail, for example, there is no such thing as education in America (2). In that continent to-day, he writes, "there is neither art, nor literature, nor education," yet "fifteen thousand professors are lecturing before a hundred thousand students in the higher institutions of learning." It is the utilitarianism of it all which rouses his ire, and utility is the "Fallacy in Education." He denounces vigorously all modern tendencies in that direction which are actually invading the sacred precincts of Oxford and Cambridge colleges. Mr. Macphail's essays are full of striking phrases, and some of his educational criticisms are suggestive and trenchant enough. "Fröbel was right in his attempt to give to children employment suited to their years and nature . . . but in time the garden of children was transformed into a schoolroom where an immature woman presides over such employments as plaiting straw and singing about the bluebird on the branch." Technical training is falling to a like level. We set a grown boy to making a rolling-pin, and "if he shows unusual aptitude for the task, his product is bedecked with a ribbon and suspended in the family sitting-room." Boys spend precious years in school "trying to develop a mind which is not there to develop and allowing a body to lie idle until it has become too fixed to acquire a habit as part of itself." In consequence, "our very workmen are amateurs, and will never be anything else." Whilst we need not be frightened by this sort of thing, there is enough "stuff" in it to convey a warning; we may still believe in utility without giving up the virility and discipline of older times.

What America is doing for its rural schools is well told in Mr. Foght's book on the subject (3). The titles of the chapters are suggestive: "Manual Training in One-room Schools," "The Library and Rural Communities," "The Training of the Rural Teacher," "School Gardens," "The Consolidation of Rural Schools," &c. The problem is an acute one in our own country, and both teachers and administrators will find much of value in this story of American effort and experiment.

Prof. Marion Talbot, of the University of Chicago, has written a stimulating account of the position of women's education in the States (4). The contrasts she draws between the daily routine of the schoolgirl of the eighteenth century, who takes pleasure in spinning yarn, footing stockings, and reading "Pilgrim's Progress," and that of the modern maid, who misses breakfast in her hurry to catch the school automobile, takes part in a class representation of the Siege of Troy, learns new steps in the physical culture class, and acts as treasurer of a toboggan club, is suggestive of great social as well as of educational changes. More detailed examination of these changes follows, in the course of which we are given some astonishing figures dealing with the work and position of women. Thus 78 per cent. of the teaching staff in the schools are women, and if we confine the figures to towns over 8,000, the percentage rises to 91. The list of occupations in the 1900 census contains 303 separate employments, in 295 of which women are found. The only employments in which no women are scheduled are those of soldiers, sailors marines, street-car drivers, and fire-department firemen! The philanthropic and social responsibilities of women have increased correspondingly. All this is only partially reflected in the schools; but much is being accomplished,

thanks to the energy and ability of the women themselves.

No monument of women's educational activity in the States is better known than Barnard College, the women's undergraduate department of Columbia University. It was founded twenty-one years ago, largely through the initiative of President Barnard, who presided over the fortunes of Columbia from 1864 to his death in 1889. A recent number of the *Columbia University Quarterly* is given up to his memory and to the institution which bears his name. The number is admirably written and well illustrated, giving an altogether impressive picture of the man and of the life and work of his vigorous child, which is now, after an eminently satisfactory apprenticeship, a constituent college of the University, adequately and even richly equipped for its great work, thanks to the munificence of many wealthy friends.

But American educational zeal takes many forms, not the least fruitful of which is that represented by another collegiate member of Columbia, viz., the Teachers' College, a unique institution devoted to advanced pedagogical work. Two volumes of its contributions to education have reached us, both of which are written by old Manchester students who elected to continue professional studies at what promises to become a sort of educational Mecca. These doctorate theses represent a considerable amount of patient work, historical and statistical, and bring together an array of facts for which students of education will be grateful. Prof. Sadler contributes an interesting preface to Dr. Sandiford's volume.

A study of French secondary schools, by Prof. Farrington, of the University of Texas, is a useful piece of work. The author spent a year in studying the schools on the spot, and his pictures of things as they are is both interesting and informing. He pays a well-deserved tribute to the high academic traditions of the Lycées and to the professional competence of the schoolmasters, whose training and work are specialised to an extent quite foreign to our ideas. "It is only in England and America where individual liberty has been pushed to the point of charlatanism so that anybody at all can teach anything at all."

### THE OXFORD WALL MAPS.

*The Oxford Wall Maps.* Edited by Prof. A. J. Herbertson. Drawn by B. V. Darbishire. *The British Isles.* Physical Features (without names). *South America.* Physical Features (with physical names). *South America.* Vegetation. By M. Hardy. *North America.* Mean Annual Rainfall. (Clarendon Press.) 7s., 8s. 6d., or 10s. 6d. each.

THESE new wall maps are produced by the Clarendon Press with its customary skill and good craftsmanship. The specimens submitted are 60 by 40 inches, arranged in four parts, each of 30 by 20 inches, mounted on one sheet, which is eyeletted for convenience in hanging, so arranged that the map may be folded and stored flat without damage. The maps can also be obtained on rollers, and where possible this will probably be the best form for school purposes, as the joining of the four parts at the folds does not appear to lend itself to rough usage. The surface is unglazed, which is a great advantage for class-work. Apparently an attempt has been made, by using large letterpress, to make maps which can be read equally well by all members of the class, whatever their situation: in an experiment with a class of thirty this was found to fail; the pupils at the side and at the back cannot read even the large letters used.

The British Isles physical features are shown by contours at 100-metre intervals both above and below sea-level, while the sea depths are indicated for other intervals outside the continental shelf. The colouring is in six shades of blue for the sea, white for land up to 100 metres, and six tints of a brownish colour for higher altitudes; the darker the colour, the higher the land and the deeper the sea. In addition, on the scale are given the heights in feet; but what will the thoughtful pupil say to the following: 150 feet=50 metres, 330 feet=100 metres, or to the spelling meters on one scale and kilometres on another? In class-work the blues are reduced to four or five shades, while the browns are reduced to three or, at most, four tints. For individual reference the variety of colouring is very useful, while the selection of contour intervals has resulted in a clear determination of many important points, such as the true configuration of the Weald; but what has happened to the Hog's Back?

The South America maps are both on the Sanson-Flamsteed equal-area projection. The names on the physical map seem useless for class purposes, as the situation of the pupil controls his power to read them, while their large size appears to detract from the clearness of the map. There are four shades of blue for the sea depths and five arrangements of colour for the land heights over 500 metres, and, so far as these can be distinguished, the main features of the orography of the continent are visible to the class.

The Vegetation map of South America is remarkable for the use of twenty-one different colourings, and while it appears to be intended that the pupils in a class should only distinguish the main colourings, their attention is directly drawn to the great detail of the map by the size of the explanatory letterpress; if it be considered advisable that pupils in schools should know these details, would it not have been better to print the names of the great natural region, forest (say), in large type, and the details, such as "evergreen beech forest, cool summer green forest, Montana forest, &c.," in smaller type? If the pupil suffers at all from inability to distinguish between shades of colour, it appears probable that some of the detail of this map may be misleading. The schoolmaster will probably rebel also at the introduction of technical terms such as *puna* and *caatinga*, which appear in a current text-book with somewhat different significations. One fact is shown admirably by this map, as by others with less detail—the effect of the Andes on the vegetation areas in relation to the direction of the mountain axis and the shore line.

The Rainfall map of North America is a mean annual map on Lambert's equal-area projection. In the "Guide to Geographical Books and Appliances," the article on school atlases, to which the reader is referred in the article on wall maps, states: "It makes all the difference if the rain falls uniformly throughout the year, or if it comes during one short season." Can it be suggested by this map that the differences in the seasonal rainfall of North America are too slight for the attention of pupils in schools? If so, can the same be said of the other continents? The prospectus says: "The importance of rainfall is so great that a rainfall map of each continent has been prepared." What shall the teacher say when the authorities disagree?

Apart from these considerations, however, the maps are good, and confirm the progress recently made by map-makers. Teachers should take an early opportunity of seeing them, and of discovering whether they are more suitable than the maps they have in use.

## A DOZEN BEAUTIFUL BOOKS.

- (1) *Celtic Tales*. By L. Chisholm. Illustrated by K. Cameron. 113 pp. (Jack.) 1s.
- (2) *More Stories from Shakespeare*. By J. Lang. Illustrated by N. M. Price. 118 pp. (Jack.) 1s.
- (3) *Tales of an Old Yew-tree*. By H. Lawrence. Illustrated by A. Laurence. 128 pp. (Blackie.) 1s. 6d.
- (4) *Old Greek Nature Stories*. By F. A. Farrar. With sixteen exquisite plates after originals in the galleries. 256 pp. (Harrap.) 1s. 6d.
- (5) *Stories from Xenophon*. Retold by H. Havell. 256 pp. (Harrap.) 1s. 6d.
- (6) *Red Cap Tales. Fortunes of Nigel*. By S. R. Crockett. 208 pp. (Black.) 1s. 6d.
- (7) *The Tower of London*. Retold by A. Jackson. Illustrated by T. Robinson. 196 pp. (Jack.)
- (8) *Kenilworth*. Retold by A. Jackson. Illustrated by H. Ford. 188 pp. (Jack.)
- (9) *Dombey and Son*. Retold by A. Jackson. Illustrated by E. Blaikie. 143 pp. (Jack.)
- (10) *The Golden Primer*. By Prof. Meiklejohn. Illustrated by Walter Crane. 61 pp. (Meiklejohn and Holder.) 2s. 6d.
- (11) *Fables and Fairy Tales (Häusaland)*. By M. and N. Tremearne. 135 pp.; illustrated. (Heffer.) 2s. 6d.
- (12) *The Gateway to Tennyson*. With an Introduction by Mrs. Andrew Lang, and sixteen coloured illustrations from drawings by A. Little. 281 pp. (Nelson.) 5s.

It is easy enough to buy beautiful books for children if you have a long purse: but no one of the books in this bundle costs more than five shillings, and only one rises to that stupendous price. The books are all literature or literary, and, like black letter, they draw one to the inner shrine. Messrs. Jack, whose name stands for fine work in this palace of imagination, send "Celtic Tales" (1): the tales are only three, but these are "Deirdre," "The Four Swans," and "Dermot and Grania." Never since Joyce's "Old Celtic Romances" went out of print (oh, publishers, have you not dreamed of reprinting "The Children of Lir"?) have these beautiful tales been done so well for children, and never at all so exquisitely illustrated. In the same series is "More Tales from Shakespeare" (2), less new, of course, to the adult, but as skilfully done as the Celtic work.

A slightly larger book is "Tales of an Old Yew-tree" (3), a historical novel for a little child, with very attractive cover and pictures; while for an older child "Old Greek Nature Stories" (4), with sixteen exquisite plates (these are the publishers' words, and are well deserved), reveals the beauty and hides the animalism of the most beautiful and animal of all mythologies. The plates are all from well-known paintings. In the "Stories from Xenophon" (5) Mr. Havell continues that excellent series of books introducing the English child to classical literature: the series has been recommended more than once in these pages. The letterpress is suited to older children, and might be read with or after the "Stories from Thucydides."

An admirable version of the "Fortunes of Nigel" (6) has been prepared by Mr. S. R. Crockett: it is profusely and brilliantly illustrated; indeed, the publishers, Messrs. Black, run Messrs. Jack very hard indeed in their colour work. But the latter send us "The Tower of London" (7), "Kenilworth" (8), and "Dombey and Son" (9), all shortened for children, the former two being seriously illustrated, and "Dombey" being, as Dickens always is, caricatured. Excepting Barnard, no illustrator seems inclined to take Dickens seriously; they are infected as they

approach him. So though there is admirable work waiting for the illustrator who will occasionally break away from the pure farce of Dickens, we still have to submit to Cruickshank (it sounds heretical), and Captain Cuttle is insulted by everyone who draws him.

"The Golden Primer" (10) is a very ingenious alphabet and small word book, and should be tried; its method seems new. A valuable contribution to young folk's folklore is written by Mr. and Miss Tremearne (11), who have already written on Hausaland. The book contains a good deal of the Tier-epos of that country, and the fuller originals may be seen in the Folk Lore Society's papers. Perhaps Hausaland is not so rich in these stories as Kashmir, but the Kashmiri stories are less suitable for children. A few notes on the spider and hyæna would not have been amiss.

The last volume (12) is a truly magnificent introduction to Tennyson, illustrating everything about the Laureate, and not confining itself to the Idylls; we miss the last note, "Crossing the Bar." Mrs. Andrew Lang supplies an introduction (very beautifully written), and the coloured illustrations are from drawings by Norman Little: the other illustrations are legion. There is not in this bundle a single book over which a well-ordered child with any spark of imagination would not pore for hours; but we do not guarantee that Buster or the crowds of children that throng some music-halls twice a day in holiday time would share our opinion. So much the better for the books; and so much the worse for the children and for the Pied Pipers, whoever they are, that lead the children on.

### GREEK POETRY.

*Lectures on Greek Poetry.* By J. W. Mackail. 272 pp. (Longmans.) 9s. 6d. net.

A CRITIC with *esprit* is something to be thankful for in this age. Mr. Mackail's taste has been long known to scholars, but this book will certainly increase his reputation for critical insight; and he has a grace and precision of language which add very much to the reader's pleasure. With all there is that glow of enjoyment, that zest, which is to the critic what imaginative fire is to the poet.

It is difficult to find anything new to say about Homer, but Mr. Mackail has noticed quite a number of delicate touches which we do not remember to have seen noted before. These are cited in illustration of large principles, not dwelt on for their own sakes: the plan of the book is to discuss large principles, the poetic movements, the essence of the poets, the structure of the poems, their imaginative force, and so forth. Each section takes a class of poetry, with some poet as its head and embodiment, bringing in other poets or poems by the way.

It is noteworthy that Mr. Mackail believes in one Homer: and we venture to prophesy that the balance of opinion will before long incline the same way. He brings out some good points as to the structure of the "Iliad," and incidentally supports the last two books against the higher criticism. In the "Odyssey" he sees the same mind, more skilful in management, less full of fire, and he thinks that even the structural skill fails at the end. We confess that we do not feel the same lack as he does in the scenes following the slaying of the suitors; they seem to us to be necessary and adequate, and to calm the reader, after the regular Greek formula for final scenes. However that may be, we note that Mr. Mackail has arrived at much the same conclusion as Longinus about the two poems: that the "Odyssey" is the work of Homer grown old.

In what follows, the essay that has most novelty and most convincing statement is that on Sappho. Her peculiar charm of pellucid truth joined with fiery passion has never been better set forth. There are also chapters on Simonides, Sophocles, Theocritus, and Apollonius.

All through the author gives very apt illustrations from English poetry. His criticism of Tennyson and Keats, incidentally brought in, is admirable; so is the comparison of the term Idyll with the title, Paradise of Dainty Devices, and the translation of Aites by a Passionate Pilgrim. Most striking is his description of the Alexandrian world in words that exactly describe the modern world. This is a book which will renew the ardour of scholars who know Greek poetry, and kindle it in those who do not.

### RECENT SCHOOL BOOKS AND APPARATUS.

#### Classics.

*Virgil, Georgics.* Translated by F. P. Shipham and A. A. I. Nesbitt. 66 pp. (Clive.) 2s. 6d.—This is an unpretending translation, for the most part satisfactory. The translators have sometimes hit on a new phrase which is quite taking: as "strip to thy ploughing, strip to thy sowing," "the rape of the purple lock," "the rascal goose." The style would be studiously simple but for its thees and thous and swains. It is also correct, except here and there (thus the sentence about the boat is ungrammatical, if "like" means "like as," p. 8). Other terms of expression that need improvement are: "buy thee as her son-in-law . . . add thyself as a new constellation . . . resought," p. 4, the Cyclops as a plural, p. 55. The quantities in proper names are erratically marked (one wrong, Cêrês, p. 5). In iii. 215 *videndo* does not mean "when he can see her," but "by her sight": this is the most serious mistake we have noticed. On the whole, it is a useful piece of work.

*Stories from Ovid's Metamorphoses.* Chosen and edited by D. A. Slater. 140 pp.; portrait, and five illustrations. (Clarendon Press.) 2s. 6d.—The illustrations in this book are very remarkable, and, except the first, we think they have not been used before. It is so rare to find intelligence at work on a school book that we prefix this remark to the rest. The stories are: Perseus, Pyramus, Cephalus, the Death of Hercules, all from the "Metamorphoses," and Ovid's life from the "Tristia"—a well-chosen group. The introduction is also written with taste—can this be a school book? We like the English verses quoted here and there, except Andromeda's preaching, but we confess we do not like the rhythm of Mr. Slater's own attempt (p. 12)—only one accent on "east and west," which is meant for an anapaest! The notes are thrice as long as the text! Many might have been left out—ought to have been, in fact: it is too bad to take the bread out of the schoolmaster's mouth by pointing out ablative absolute, "the accusative of object 'after' a 'passive' verb" (!)—where the principle really needs explaining, only no one ever tries—"abl. of the source," and all the rest of it. But notes on allusions, and illustrations from literature, are exactly to the point. There is plenty of good matter in the notes, but not the same judgment as earlier. There is a vocabulary.

*A Companion to Latin Studies.* Edited by J. E. Sandys. xxxvi+892 pp. (Cambridge University Press.) 18s. net.—This is a most welcome book in all respects but two: its weight and its paper. It is printed on that disagreeable shiny paper which publishers declare to be necessary

for cuts; even if it were true, why sacrifice all the text to the pictures? and it is too heavy to hold. If it could only be issued on request bound in fascicules, what a blessing that would be! Then we could read Dr. Reid's admirable account of Roman Law without being treated with the *peine forte et dure*.

We mentioned Roman Law, because that fulfils a long-felt wish of our own. For years we have had to hunt high and low in all sorts of tomes for even the law necessary to understand Cicero's speeches. Now we have it in a pamphlet, a buried pamphlet, it is true, but at all events here it is. It must have been a most difficult job to do, and we are filled with admiration at the way it has been done. Nor is this the only subject where our manual—the word slipped out! our *μέγα βιβλίον* gives shortly what cannot be found elsewhere. Take the topography, for instance (no doubt Fauna and Flora, but we really have not time for Fauna at least): or chronology: or religion: or daily life: or education: or finance: the municipal system, colonies, provinces—how often have we sighed even for a full list of provinces!—or philosophy: or natural science and medicine (we cannot say we have sighed for these, but we receive them thankfully), or epigraphy. Dr. Verrall's Literature is brilliant and highly attractive to read. He had the happy thought to give a literary criticism of the chief poets rather than the birth-days and income tax of them all.

On looking over this list we see that we have put down most of the headings; and it is a fact that most of this book is not to be found elsewhere in a convenient form. All the book is written by specialists who are authorities in their own lines, and though no serious undertaking is without mistakes, we may expect few here. But we come back again to Dr. Reid: Roman Constitution and Roman Law, two tough subjects, and how masterly dealt with! We must not forget the tables of reference, which add to the usefulness of the book.

#### English.

Messrs. Macmillan's Shilling Library: *H.M.I.: Some Passages in the Life of one of H.M. Inspectors of Schools.* By E. M. Sneyd-Kynnersley. *Leaves from the Notebooks of Lady Dorothy Nevill.* Edited by Ralph Nevill. *Reminiscences of the Great Mutiny.* By William Forbes-Mitchell. *Tales of Old Japan.* By Lord Redesdale. Illustrated by Japanese artists. *Barracks, Bivouacs, and Battles.* By Archibald Forbes. *Cawnpore.* By Sir George Trevelyan. *At Last.* By Charles Kingsley. *North Italian Folk.* By Mrs. Comyns Carr.

*The Cruise of the Cachelot.* By Frank T. Bullen. *Deeds that Won the Empire.* By W. H. Fitchett. (Smith, Elder.)

All 1s. each, and all about 300 pp. each.

A most interesting library is Macmillan's Shilling Library. The books are more out-of-the-way than in most of the reprint series that are met with. Yet, of course, the books are reprints. "Leaves from the Notebooks of Lady Dorothy Nevill" sparkle on every page; Trevelyan's "Cawnpore" is a classic already among historical monographs; and "Tales of Old Japan" is a story-book, not always *virginibus puerisque*, well known; it stands perhaps at one extreme, while the work of Giles is in the middle, and that of Hearn is nearest us. The three represent a triple aspect of Japanese folk-lore. "Barracks, Bivouacs and Battles," by the famous Forbes, is full of fine nervous writing. "Reminiscences of the Great Mutiny," by Forbes-Mitchell, can scarcely be read even to-day by any whose relatives went through any part

of that fearful time. Mr. Sneyd-Kynnersley's pleasant reminiscences of inspection is practically new, and is crammed with good things; Kingsley's "At Last" is the only one among these books which may be considered as at all old. Mrs. Carr's "North Italian Folk," with illustrations by Randolph Caldecott, is perhaps the least known of this excellent set.

In a similar series we have received the well-known "Cruise of the Cachelot," by Frank Bullen, and Fitchett's "Deeds that Won the Empire."

All the books spoken of are well-bound and attractive, and some are illustrated. They are quite a notable addition to shilling ventures, for they are not books which ought to be read, but books which will be read.

*The Meditations of Marcus Aurelius.* Translated by George Long. With an Introduction by W. L. Courtney. xxxiii+186 pp. *Essays of Sir William Temple.* Selected, with an Introduction, by J. A. Nicklin. ix+331 pp. *Plays by Richard Brinsley Sheridan.* With an Introduction by R. B. Johnson. ix+319 pp. (Blackie.) 2s. 6d. net each.—New additions to the Red Letter Library are always sure of a welcome. The three latest volumes fully maintain the high standard of the series, and they may be recommended cordially to the notice of teachers of English.

#### Mathematics.

*An Elementary Treatise on Co-ordinate Geometry of Three Dimensions.* By R. J. T. Bell. xvi+355 pp. (Macmillan.) 10s. net.—This work forms a very valuable addition to the somewhat small list of English works dealing with three-dimensional co-ordinate geometry. It embodies the course of lectures which the author for several years has given at Glasgow University, and there can be no doubt that many of the excellent features of the book are an outcome of the experience so gained of the difficulties of students, and of the manner in which different modes of presentation appealed to them. The first ten chapters contain a fairly complete account of the geometry of the line, plane, and conicoids, considered separately, followed in the eleventh chapter by a discussion of the general equation of the second degree. The topics discussed in the later chapters include systems of conicoids, conoids, surfaces in general, curves in space, envelopes, ruled surfaces, curvature of surfaces, asymptotic lines and geodesics. The methods associated with homogeneous co-ordinates, tangential equations, and reciprocal polars are omitted. Much attention is paid to problems of interest to students of applied mathematics. The examples are numerous, they are very varied in character, and among them will be found a number of important theorems which could not conveniently be included in the text. The excellence of the type and diagrams calls for special mention.

*Homogeneous Co-ordinates.* By W. P. Milne. xii+164 pp. (Arnold.) 5s. net.—Homogeneous co-ordinates lie outside the range of study of the ordinary student, but they form a very beautiful and powerful weapon for attacking the problems of higher geometry. The object of Mr. Milne's book is to teach methods and not results, and hence he has not attempted to write a self-contained treatise on the curves of the second degree, but has at many points availed himself of results obtained by the methods of projective geometry, referring to other works for proofs of the theorem assumed. The first two chapters deal with the straight line and conic, the third with tangential co-ordinates, and the fourth with the circular



points at infinity. The last chapter, dealing with parametric representation, is probably the most useful, as this matter receives scanty attention in the majority of text-books. There is an excellent collection of examples, the greater number being taken from Cambridge papers. Altogether, the book will be found a very useful introduction to the more advanced treatises on the subject.

*Calculus Made Easy.* By F. R. S. x+178 pp. (Macmillan.) 2s.—Why a liberal use of slang should be supposed to assist in the elucidation of the principles of the calculus is a mystery to us. We are not sure that the author is very proud of his performance, for he conceals his identity under the veil of anonymity; and yet, apart from the language, there is little to be ashamed of. The prologue states that the fools who write the text-books of advanced mathematics—and they are mostly clever fools—seldom take the trouble to show you how easy the calculations are. On the contrary, they seem to desire to impress you with their tremendous cleverness by going about it in the most difficult way. Those who are acquainted with elementary books such as those by Love and Gibson will be inclined to think that such a statement as the above convicts the author, not only of stupidity—which he claims for himself—but also of ignorance. We shall not gratify him by saying that the book is a thoroughly bad one. neither do we think it very good; it is inferior to some books which could be named. Still, it is a very clear, and on the whole trustworthy, introduction to the subject, covering a considerable amount of ground, including some simple differential equations. On p. 12 a mistake in sign has been made. At the outset,  $-dy$  is printed for the change in the value of  $y$ , and in the example  $dy$  is essentially positive; hence  $dy/dx$  must also be positive, and not negative as stated. The same confusion with regard to sign also appears on p. 37.

*First-year Mathematics for Secondary Schools.* xii+365 pp. 4s. net. *Second-year Mathematics for Secondary Schools.* xiv+282 pp. 6s. net. By G. M. Myers and others. (University of Chicago Press.)—The Chicago University High School was the laboratory in which the course of instruction in mathematics contained in these books was planned and tested. In the first-year course the chief emphasis is placed upon algebra, but interwoven with it is a considerable body of the fundamental notions and principles of geometry. In the second year the relative positions of these subjects is reversed. It is unnecessary to enter into detail regarding the arrangement of the subject-matter, for it does not differ in any essential respect from that adopted in "modern" books in this country. The closer interweaving of the two subjects, though practised in some of our schools, is hardly represented in our school literature except by the books on "practical mathematics," but these differ from the books under review in neglecting the deductive and formal element. The writers claim that their method has produced excellent results, and it is worthy of careful consideration by educationists in this country.

#### Science and Technology.

*Notes on Applied Mechanics.* By R. H. Whapham and G. Preece. 206 pp. (Arnold.) 4s. 6d. net.—This book has been compiled for the use of naval cadets after they leave Dartmouth for their six months' cruise in the training cruisers *Cumberland* and *Cornwall*, and represents the experience gained by the authors in teaching cadets on board these ships. As the matter is presented

in the form of notes it is necessarily condensed, but not so much so as to prevent a student who has had a previous grounding in elementary mechanics from grasping the points. The use of the calculus is avoided; hence a student of moderate mathematical ability will find no difficulty in reading the whole of the book. The standard is about that of a second year's course in the subject. Owing to the special class of students catered for, the applications of the principles are somewhat restricted. A great many of the examples and illustrations are drawn from naval and marine practice, and these should prove very useful to any teacher seeking fresh exercises. Thus we note a number of very interesting examples of relative velocities in chapter v., dealing with tactical and scouting problems. The notes are for the most part clearly and correctly expressed, but, as is the case with many modern books on applied mechanics, difficulties are evident in stating the principles of fundamental units. For instance, the notes dealing with the relation between force, mass, and acceleration on pp. 2 and 3 read as though the acceleration due to gravitational effort were uniform, and are not decisive in distinguishing between an absolute and a gravitational unit of force. On the whole, the book is to be commended, and will doubtless appeal to a much larger class of readers than that for which it is primarily intended.

*Experimental Applied Mechanics for Technical Students.* By James L. Maxim. xvi+176 pp. (Longmans.)—This little book is intended to aid students preparing for the Board of Education examination in the experimental part of applied mechanics. While this object may be entirely praiseworthy, we cannot but comment on the methods by means of which the author secures the desired result. Starting with the preface, and continuing to the end of the book, we find copious extracts from the Board of Education syllabus, followed by the author's explanation of the meaning. In this way the syllabus is gradually and completely dissected, a process which we cannot believe its framers ever intended to be followed, and one which few teachers having high ideals would be willing to adopt. A syllabus is intended merely as a guide as to the extent of knowledge required in candidates presenting themselves for a given examination. Following any syllabus rigorously invariably produces the result that the candidate attaches more importance to passing the examination than to acquiring a sound knowledge of the subject, and has generally the further effect of tending to eliminate originality in both teacher and student. It is a matter for regret that an otherwise excellent little book should be thus spoiled. The illustrations are clear, and the explanations are mostly of a nature that will be comprehended readily by the student. We think, however, that the division of levers into the old-fashioned three orders might well have been omitted (p. 50). Fig. 40 shows a crab fitted with a derrick jib; these are better separated. The jib serves no useful purpose and is always in the way. We also note that the explanations of experiments in hydrodynamics (p. 143) are much too brief to be of service to the experimenter.

*The Calculations of General Chemistry.* By W. J. Hale. xii+175 pp. (Bell.) 4s. 6d.—This second edition of a manual of elementary chemical arithmetic may be recommended most warmly for its lucidity and for the complete manner in which it deals with each subject undertaken. A large number of examples is appended to each chapter. Although most valuable for the average scholar, it fails to include the whole of the calculations usually studied in

the last year's course at school. Perhaps in a later edition the author may add chapters on the calculation of equivalent and atomic weights.

**Essentials of Chemistry.** By R. P. Williams. x+421 pp. (Ginn.) 5s. 6d.—Although in many ways an interesting new departure, this text-book, by the chemistry master of an American high school, is hardly likely to be adopted in many English schools. The author is an adherent of chemical spelling reform, and while it may be perfectly logical to write "oxid," "chlorid," "sulfate," and the like, we cannot help a feeling of half-amused annoyance at the liberties thus taken with chemical nomenclature. The book includes a considerable amount of physical chemistry and of description of manufacturing methods, as well as short historical sections. The experimental work, arranged in chapters separate from descriptive matter, is supplemented by a large number of practical problems in which the method of procedure is merely suggested. The illustrations include a number of portraits of eminent chemists. Teachers of the subject will gain many valuable hints from this book.

**A Manual of Practical Inorganic Chemistry.** By A. M. Kellas. vi+347 pp. (Frowde and Hodder and Stoughton.) 5s. net.—This book differs from the author's recently published "Introduction to Practical Chemistry" mainly in scope; it is much more complete, including as it does sections on gravimetric and gas analysis in addition to full directions for the analysis of mixtures. Its form and method will probably hardly recommend the book for use in schools; it is suited rather to the needs of medical and pharmaceutical students. Its directions, however, are comprehensive and clearly expressed, and the course contains all the analytical work which can possibly be required in schools; for these reasons it may be a useful addition to the reference library of a school laboratory.

**Introduction to the Preparation of Organic Compounds.** By Emil Fischer. English translation by R. V. Stanford. xx+175 pp. (Williams and Norgate.) 4s. net.—This translation of the eighth German edition places in the hands of English students a manual of practical organic chemistry which is the result of thirty years' experience. The ninety preparations described have been chosen so as to include examples of almost all the operations and many of the synthetical methods in common use. Twenty of them are intended specially for the use of students of medicine and biology. The directions are most careful and complete. In many cases references to the original literature are prefixed. The book may be recommended strongly for the use of advanced students, especially as the choice of experiments differs somewhat from that of other similar manuals.

**Analysis of a Mixture.** By Walter Harris. 32 pp. (Whittaker.) 6d. net.—This small book, consisting of extracts from a larger volume, is adapted specially to the needs of candidates taking analysis in the Junior Oxford Local, and deals with ten metals and seven acids in a satisfactory manner. The clear treatment of "tests in a dry way" is worthy of special commendation.

**Theoretical Principles of the Methods of Analytical Chemistry.** By M. G. Chesneau. Translated by A. T. Lincoln and D. H. Carnahan. x+184 pp. (New York: The Macmillan Company.) 7s. 6d. net.—While presenting an interesting account of the relations of modern theoretical chemistry to the methods of qualitative and

quantitative analysis, this book is remarkable chiefly for its opposition to the principles advocated by Ostwald in his "Foundations of Analytical Chemistry." The author has collected and presented in an able manner a number of cases in which the theory of electrolytic dissociation fails to account for experimental fact. In his study of the double decomposition of salts the author relies to a large extent upon his new calorimetric method.

#### Miscellaneous.

*Who's Who*, 1911. xxvi+2246 pp. (Black.) 10s. net.

*The Englishwoman's Year Book and Directory*, 1911. Edited by G. E. Mitton. xxiv+386 pp. (Black.) 2s. 6d. net.

*The Writers' and Artists' Year Book*, 1911. viii+127 pp. (Black.) 1s. net.

"Who's Who," with its 23,000 biographies, is a more indispensable annual than ever. It provides personal details concerning important contemporary workers of all kinds. It increases in size every year; the present issue, for instance, is eighty-four pages longer than that of last year. Distinguished schoolmasters and schoolmistresses receive due honour in its pages, and it would, in fact, be difficult to find a branch of human activity unrepresented in its pages. It is likely long to remain one of the most popular works of reference.

The place of honour is given to education in the new "Englishwoman's Year Book." Not only is secondary education for girls dealt with at some length, but the work of universities for the higher education of women, and the facilities they offer women for research work, receive extended treatment. No woman who works can afford to be without access to this valuable book.

The third volume is a directory for writers and artists. It provides just the information which they require to enable them to place their work. Reference to its pages is made easy by skilful and attractive arrangement.

*The Self-adding Mark Book and Reducing Scale*, designed by Hubert Ord (Dent, 9d.), is sufficient for 3,500 marks for forty-five pupils. Each pupil's marks are recorded by the length of a line, which grows as his total increases. Every fifth line is alternately red or blue, to assist the eye. Thus the marks can be recorded easily for each lesson, and the total at any time can be seen. The method is explained lucidly and is simple in practice. The book includes a blank time-table and a reducing scale, consisting of a sheet of squared paper accurately printed. The method of using the scale is explained hardly adequately, but will be familiar to those acquainted with graphs.

#### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

#### Employment Bureaux.

THERE has recently been issued by the Board of Trade and Board of Education, jointly, a "Memorandum with Regard to Co-operation between Labour Exchanges and Local Education Authorities exercising their Powers under the Education (Choice of Employment) Act, 1910," dealing with the problem of assisting juveniles into suitable employments at the outset of their careers; and as

the views of the writer are probably representative of the great majority of those who have given much thought to the problem, being engaged in the organisation of further education for the class intended to be reached, it may be of some use to give expression to them, particularly as he finds himself unable to agree with the manner in which the local education authorities are being subordinated to the labour exchanges, by the Board of Trade, with the connivance of the Board of Education. One can only hope that worthy motives are at the bottom of it, and that this assistance to juveniles is not being imported into the functions of the labour exchanges for the purpose of popularising them and the Government responsible for their inauguration. There is, of course, an important difference in the function of an exchange as applied to adult and juvenile labour. In the former case it is essential that the exchange should be a national institution, because this facilitates the drafting of men from a district where there is no outlet for their labour to one where there is an outlet; but in the case of juveniles no such drafting is desired, and so the organisation of the juvenile labour market is purely a local problem, and would most appropriately be dealt with by a local education authority. We have to remember that the advising of parents and the filling up of forms giving data regarding the children will chiefly fall on the teachers—servants of the local education authority; the keeping of their records at the evening schools and technical classes will fall likewise on servants of the education authority, whilst the visiting of parents, where necessary, will be done by local social workers, who would be more likely to work enthusiastically for the local education authority than for the official in charge of the labour exchange.

In properly comprehending the problem, it is necessary, of course, to rid one's mind at the outset of the fallacy that this question of advising the parents of children on "blind-alley" employments has any but the slightest bearing on the unemployment problem. It is an economic necessity for the family that these children, when they leave the day school, shall go to work with as little delay as possible, and it is an economic necessity of society at the present time that most openings for children are blind-alley ones, and the children will continue to fill them, advice or no advice. Hence if little Peter, through the influence of the Juvenile Labour Bureau, gets a post that would otherwise have gone to little Paul, he will bless the labour bureau, but little Paul would have equal cause, if he realised it, to curse it; and the sum total of social benefit is  $+1-1=0$ .

What, then, we may ask, is the good of any such attempt to interfere with the ordinary means by which children are placed in employments? and the answer is at once apparent, that it is only in so far as its organisation can be made to have an influence on the education of the child. If it can be shown to parents that the most deserving children will be directly helped in obtaining the most desirable employments, and to employers that they will be assisted in getting well-educated and trustworthy juveniles, it will give such an incentive to continued education that the standard of education of the masses will be continuously raised; and though it is undoubtedly true that larger possibilities of employment will be opened out to any child who will have been made handier and more adaptable by the practical training given in laboratory and workshop, and to those who have obtained the rudiments of a commercial education, the great bearing on the problem of unemployment would be this—that an enlightened proletariat would not have it.

Social reform will, in the main, keep pace with the

increasing standard of education of the workers of the nation, and any influence which will extend the habits of study and amenability to discipline formed in the day schools over the period of adolescence should be carefully cherished. The tendency of the times is to raise the age for exemption from the day school and to introduce compulsory continuative education up to the late teens, and it seems to the writer clear that the proper policy to pursue will be to leave the education and guidance of the young people until this age is attained entirely in the hands of the local education authority if willing to undertake it. Of course, if any local education authority does not realise its obligations in the matter, it should be open for the labour exchange to take the initiative in forming a juvenile advisory committee, and likewise it should be open for an education authority to seek the co-operation and assistance of the officials of the labour exchange; but to say that the local education authority *must* submit their scheme, which is essentially of local import, which is a necessary part of the educational organisation, and a part which will give education a much-needed driving force, for the approval either of the Board of Education or Board of Trade, seems an impertinence, since neither of these authorities proposes to subsidise the work.

Local education authorities have to submit to many vexatious restrictions and interferences from the Board of Education because, as a rule, grants are received from the Board on account of the work for which it claims to frame the regulations; but in this case "the Board of Education, in consultation with the Board of Trade," proposes to impose conditions on the local education authority in carrying out a purely local work without making any financial contribution.

I do not argue against co-operation between the local education authority and labour exchanges; in most cases it will be desirable, but if a local education authority thinks it can best work out its own problem, it should be competent for it to do so without interference, as has hitherto been the case at Liverpool and elsewhere.

I trust that all local education authorities will stand out firmly for the option of independent action, or, as an alternative, for financial assistance from the Treasury.

Southport.

WM. ALLANACH.

### The Calculation of a Square Root.

THE contention of my article in your January number was that the Greek method of presenting general arithmetical truths in a graphical form has advantages which should often make modern teachers prefer it to the use of an algebraic notation. The investigation of the rule for calculating square roots was given as an example of this mode of procedure.

I was not aware until after the publication of the article that the later Greek mathematicians are known to have made this very application of the method in question. Detailed records of only three or four of their arithmetical processes have come down to us, but one of them is a complete anticipation of my article. The most explicit of these records are contained in an elaborate commentary by Theon of Alexandria (*circa* A.D. 365) on the first book of Ptolemy's *μοθηματικη συνταξις*. Theon gives a diagram which is my Fig. 4 inverted, with the corner squares marked off as in Fig. 2. The resemblance between the arguments is made all the closer by the fact that Ptolemy (whose method is being expounded) approximated to his square root by means of a series of "sexagesimal fractions" exactly analogous to the modern decimals, with the difference that the successive denominators were powers of

60 instead of powers of 10. (Our sexagesimal divisions of the degree and the hour are relics of a notation which was applied by Ptolemy to all manner of measurables.)

The library of the British Museum contains a beautiful edition of Theon's commentary, separated from Ptolemy's text and edited with a French translation by the Abbé Halma (two vols., Paris, 1821). The work is well worth the attention of the teacher, for its interesting, though long-winded, explanations of the arithmetical processes of multiplication and division, as well as of finding a square root, and for several good illustrations of the use of graphical methods in teaching important arithmetical notations.

My ignorance that I was merely expounding afresh the old Greek method in a modern idiom is all the more reprehensible, since there is a very clear description of Theon's work in the introductory chapter of Dr. T. L. Heath's excellent book on Archimedes. I draw for myself, and offer to your readers, the moral that such books as this and the companion volumes on Euclid and Apollonius should be much more frequently in the hands of the teacher of elementary mathematics.

Perhaps you will allow me further space to direct attention to the fact that the graphical method leads directly to a familiar approximation to the square root which is of much more practical value than the one spoken of in my article. For example, let the area of AB (Fig. 2 of the article) be 915 square inches. It is clear that the side is between 30 and 31 inches long. Mark off AX = 30 inches, and draw the square XY. Then the rectangle of Fig. 3 has an area of  $915 - 900 = 15$  square inches, and

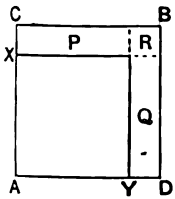


FIG. 2.

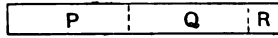


FIG. 3.

is, therefore, approximately  $15/60$  inches high. Thus the square root of 915 is approximately 30.25. (The correct value to three places is 30.249.) This method of approximation will obviously be applicable to any number which is not much greater than a known square number. In symbols we have

$$\sqrt{a^2 + R} = a + R/2a \text{ approx.}$$

There is no doubt that the modern practice of excluding cube root from the school course is sound. There is, however, much to be said for teaching an approximation method exactly analogous to the foregoing. For this purpose I use a model consisting of a cube  $a^3$ , three square slabs  $a$  inches in the side and of moderate thickness  $b$  (making in all a volume of  $3a^2b$ ), three prisms each of volume  $ab^2$ , and a cube of side  $b$ . The rest of the pieces are built up round the cube  $a^3$  to make the cube  $(a+b)^3$ . Let the total volume of the added pieces be  $R$ . They can be stripped off from the central cube and laid on the table so as to form a large slab of uniform height  $b$ . Suppose  $a$  and  $R$  to be known, while  $b$  is unknown. Then we have

$$b = R/(\text{total area of the slab}).$$

If  $b$  is relatively small, the total area of the slab reduces for practical purposes to the area of the three square slabs. In this case we may write

$$b = R/3a^2 \text{ approx.}$$

Applying these considerations to the calculation of the cube root of 80, we have

$$\begin{aligned}\sqrt[3]{80} &= \sqrt[3]{4^3 + 16} \\ &= 4 + 16/48 \\ &= 4.3 \dots\end{aligned}$$

By four-figure logarithms the cube root is 4.309. Expressed in symbols, the rule becomes

$$\sqrt[3]{a^3 + R} = a + R/3a^2 \text{ approx.}$$

Any teacher who thinks it worth while can use the model to investigate the process for determining a cube root exactly. The successive steps are entirely analogous to those of the method for square root.

T. PERCY NUNN.

P.S.—In a letter dated January 12th, Dr. C. McLeod, of Aberdeen Grammar School, tells me that he has used for two or three years a method for square root practically identical with mine. I gladly take the opportunity of acknowledging his priority to me in the use of the method. He agrees with me in the expectation that many teachers would be found to have rediscovered Ptolemy's device.

I NOTICE in the January issue of THE SCHOOL WORLD that Dr. Nunn has given a clear exposition of the extraction of a square root graphically.

There is a very simple universal method of obtaining the square root of an odd number which I have never seen in any text-book, and which I discovered quite recently. One example will suffice to explain the method.

Required to draw a line to represent the square root of 17. Draw a line AB to represent half of this number less one,

$\frac{17-1}{2} = 8$ . On A erect a perpendicular AC. With centre B and radius  $8+1$ , draw a circle cutting AC in D. Join BD. Then AD represents  $\sqrt{17}$ . It will be noticed that 17 is the sum of the base and hypotenuse.

The proof is, of course, quite simple. Let  $a$  = the base and  $(a+1)$  the hypotenuse. The hypotenuse squared =  $a^2 + 2a + 1$ , and the perpendicular =

$$\sqrt{a^2 + 2a + 1 - a^2} = \sqrt{2a + 1}.$$

If  $a = 8$ , the perpendicular =  $\sqrt{17}$ .

R. E. ELLIS.

### An Apparatus for Simplifying the Teaching of Trigonometry.

THE apparatus consists of a celluloid set-square with one right angle and two  $45^\circ$  angles. The side DC is graduated in cm. and mm., and a scale of degrees is marked at E. AB is a movable arm graduated in cm. and mm. along a centre line. This centre line will lie exactly along either DB or CB when the arm is moved into either position.

The apparatus will be found useful in learning the elements of trigonometry, as all trigonometrical values can be obtained by its means. The following examples will show some of its uses:

Let  $a$  = adjacent side of the angle of  $\Delta$ ,  
 $b$  = hypotenuse side of the triangle,  
 $o$  = opposite side of the angle of  $\Delta$ ,  
 then  $\sin$  of angle =  $o/h$  cosec. =  $h/o$   
 $\cos$  of angle =  $a/h$  secant =  $h/a$   
 $\tan$  of angle =  $o/a$  cotan =  $a/o$ .

On reference to the diagram, it will be seen that any of the trigonometrical values can be obtained up to  $90^\circ$ .

Thus to find the  $\sin$  of  $20^\circ$ , adjust the movable arm



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SIXPENCE.

## SIMPLIFIED SPELLING.

By Prof. WALTER RIFFMANN, M.A.

### I.

A FEW years ago a list of three hundred words was recommended by Mr. Roosevelt for adoption in official publications in the United States. This list (reprinted in *THE SCHOOL WORLD* for October, 1906) led to some discussion in England; but there was no thorough investigation of the important question that had been raised, and no attempt was made to interest the general public. Since then the Simplified Spelling Board of America and our own Simplified Spelling Society have given much time and thought to working out the problem of simplified spelling.

A desire to simplify the spelling is not peculiar to those who are concerned with English. If we compare a German book printed before 1880 with a book recently printed, we may see at once what improvements the Germans have effected in this short time. In Holland an important reform has lately been brought about. In France more than one reformer has come forward; they were quite numerous in the sixteenth century, and by no means isolated towards the end of the nineteenth. In Italy the distinguished Senator, Prof. Luciani, has just proposed a scheme of phonetic spelling.

In our colonies the movement is gaining force; thus in Nova Scotia the American simplifications are being carefully considered, and Dr. Mackay, the Superintendent of Education there, proposes to introduce, at the Imperial Education Conference, the following subject: "The attitude of Education Departments to the more important movements in favour of the simplification, improvement, and uniformity of English spelling."

We cannot close our eyes to the fact that this question must be faced. Thirty years ago an earnest attempt was made, which proved abortive, because—as Prof. Skeat said at the recent meeting of the English Association—people were at that time sadly ignorant of the history of the language. Fortunately during the last generation there has been an improvement in this respect. Another notable change that has taken place, mainly in the last ten years, is the spread of phonetics. The application of phonetics to instruction in modern languages has revolutionised

the teaching of the pronunciation; we are beginning to realise its vast possibilities in the teaching of the mother tongue. The spoken language is gradually coming to its rights again. Why it should so long have been neglected—that is another story for which I have no space here.

The time is ripe now for a calm and reasonable consideration of the question whether the spelling is in need of change; and if so, what form that change should take.

As teachers, we are particularly and profoundly interested in the matter. We shall soon be called upon to give our opinion; it is our duty to examine the question thoroughly before we pass judgment. In such a matter our views are likely to carry much weight; and it is because I have myself a keen sense of the importance of the subject, and have given to it very earnest thought, that I venture to place my views before my fellow teachers. This I shall do in two articles: I shall first examine our present spelling and point out the harm done by it; then I shall deal with the various objections that are urged against any change, and I shall conclude by mentioning various proposals that have been made to improve the spelling.

### THE PRESENT STATE OF OUR SPELLING.

That our spelling is inconsistent is obvious even on a cursory inspection. No one who learns to write it can fail to be struck by the various ways in which the same sound is represented or by the various sounds that are represented by the same sign. To the foreigner who learns the language at an age when the powers of observation and reasoning are well developed the unsatisfactory nature of the spelling is, of course, more apparent than to the child learning its mother tongue at an early age.

Most of us have but dim recollections of this period. By constant repetition the form of words has become rooted in our memory; the irregularity of the spelling is no longer felt to be a grave impediment—though there are some who never learn to spell. In order to realise fully how bad the spelling is, we must investigate the matter.

To gain clear ideas on the subject, I took a dictionary, crossed out the rare words, and then made lists of the various ways in which the sounds are represented. Thus I collected all the cases in

which the sound of *ai* in *aim* is represented by *ai*, by *a . . e* (as in *name*), by *ei* (as in *rein*), by *ay* (as in *day*), by *ey* (as in *they*), &c. This is very slow work, and few are likely to undertake it for themselves; but I believe my results are generally trustworthy, and certainly they suffice for my present purpose, which is to indicate how far the spelling is unsatisfactory as a representation of the sounds. I shall give illustrations only, and no statistics of the frequency of the various phenomena; and I shall not deal exhaustively with any particular set of phenomena.

Taking first the consonants:

(1) There are cases in which the same consonantal sound is represented by several signs; e.g., *k* (*cat*, *kitten*, *queer*, *extra*), *sh* (*shall*, *sure*, *machine*, *mention*, *special*, *ocean*, *version*, *mission*, *conscience*, *anxious*).

(2) There are cases in which the same sign represents several sounds; e.g., *s* (*sit*, *easy*, *sure*, *leisure*), *ch* (*chat*, *machine*), *g* (*get*, *gem*).

(3) There are cases in which a doubled consonant is used in place of a single consonant; e.g., *ebb*, *sadder*, *waggish*, *tapping*, *betted*. (In this connection note such inconsistencies as *all* and *withal*, *well* and *welcome*, *till* and *until*, *full* and *beautiful*.)

(4) There are cases in which consonants are written but not pronounced; e.g., (initially) *gnat*, *knave*, *whole*, *write*, *hour*, *psalm*; (finally) *comb*, *high*, *autumn*; (medially) *light*, *sign*, *half*, *castle*, *handkerchief*, *doubt*, *answer*.

These few examples should suffice to give some idea of the inadequacy of the consonantal part of our spelling; a statistical statement would have shown it far more conclusively.

But if the consonants are unsatisfactory, what are we to say about the vowels? Here the irregularity is amazing. It is unnecessary to give more than a few examples:

The same vowel sounds occur, differently spelled, in *be*, *pea*, *seed*, *cede*, *key*, *quay*, *police*, *receive*; in *go*, *foe*, *rode*, *road*, *rowed*, *bureau*, *yeoman*, *sew*, *brooch*, *though*, *soul*, *know*; in *due*, *dude*, *feud*, *lewd*, *viewed*, *you*, *ewe*, *beauty*, *suit*.

The same sign (or digraph) represents different vowel sounds in *bit*, *bind*, *sir*; in *cries*, *crier*, *sieve*, *siege*, *prairie*; in *head*, *heart*, *pea*, *pear*, *real*, *corporeal*; in *woman*, *women*, *go*, *son*, *shone*.

Vowels are written, but not pronounced, in *lead*, *guard*, *forfeit*, *buoy*, *fatigue*.

These examples suffice to show that the spelling is thoroughly unsatisfactory. It is impossible to tell from the sounds alone how a word should be written; there are no rules to guide the learner.

What has led to this bewildering state of things?

In the early stages of a written language the spelling is necessarily phonetic; that is to say, one sign is used to represent one sound (or a combination of sounds) existing in the language. People had, for instance, a sound *l* in their

speech, and they used the sign *l* to represent it always; and the sign represented nothing else. This was the case in the oldest stage of our language, as it was in old French and old German. The two vowels in *name* once had much the same pronunciation as they had in classical Latin.

Then the Normans (who in a remarkably short time had given up their language and learnt French instead) came to England, and changed the spelling in accordance with the habits they had acquired in spelling French; thus the vowel in *house*, which formerly had much the same sound as in our *loose*, was written *ou*, because that was the representation of the sound familiar to the Normans.

The invention of printing marks an important stage in our spelling. It is inconvenient to allow compositors to spell as they please, and rules are drawn up for their guidance. (Incidentally, it may be noted that many of the early printers learnt their craft in Holland; which explains, for instance, the introduction of an *h* in *ghost*.)

The spelling consequently became more and more uniform and stable; but the pronunciation changed nevertheless. Hence an ever greater discrepancy between the two; the spelling ceased more and more to afford an indication of the sounds; it therefore lost the power to check sound change, or at least to reduce the rate at which it went on.

Another influence that appears, in English as in French, is the desire to make the spelling something more than a representation of the sounds. The difference between English words and the Latin words with which they are connected was obvious to all who learned Latin; and at an age when Latin was regarded as the language of culture and the mother tongue was despised, what more natural than that attempts should be made to render the modern words more like the Latin? And so *b* was introduced into *debt* and *doubt* (as it was also for a time in French), and *c* into *perfect* (as in *parfait*, the *c* did not—at first—form part of the English word). Often the learned were not quite learned enough and wrote *sovereign* (which has nothing to do with *reign*), as in French they wrote *poids* (taking the *d* from *pondus*, with which *poids* is not connected). The desire to make the derivation from Latin more obvious is clear in these examples, to which many others might be added.

The spelling, then, has suffered because our language was written by foreigners; because it became fixed, and so failed to record many changes in the pronunciation; and because the learned (or would-be learned) tried to approximate words to Latin.

The invention of the alphabet we use marked a wonderful advance in civilisation, yet at its best it still falls far short of the spoken word, for it does not record the intonation which may give to a mere monosyllable such wealth of meaning. At its worst it departs as far from the spoken



word as is the case in our mother tongue, to our great loss. How great that loss is I shall now attempt to indicate by considering

#### THE HARM DONE BY THE PRESENT SPELLING.

It is to this that I would particularly direct the attention of all who are concerned in educational progress. No one can remain unaware of the irregularity of the spelling; but it is not common to find that the grave consequences have been fully realised. We have become so thoroughly accustomed to the present state of things that we find it difficult to estimate what might be attained if the conditions were different.

In the first place, the spelling is so far removed from the pronunciation that it affords no guidance as to the sounds. This statement is, indeed, too sweeping; there are letters representing certain consonants which are used with tolerable consistency. The letter *b* generally stands for the sound *b*, the letter *f* for the sound *f*; and these sounds are little exposed to change. But it is otherwise with many sounds—especially the vowels; and it is here that change takes place most extensively. Now in a language like German, where the spelling corresponds much more closely to the sounds, the pronunciation changes slowly; the letters safeguard the sounds. There is every reason to believe that a phonetic spelling, in an age of compulsory education, greatly lessens the rate of sound change.

It would take me too far afield to enter into a discussion of sound change and of the far too common use of such expressions as "phonetic decay." There are some in every age who view recent changes with dislike. The older generation, as a rule, prefers its pronunciation to that of the younger generation. Thus at the present day there are many who think that the reduction of unstressed syllables has gone too far in Southern English. They object to the identical pronunciation of the ending in *able*, *label*, *idol*, *legal*, to give only one example. If it were the general rule that the sounds afforded unmistakable guidance to the spelling, we should undoubtedly, in teaching, distinguish final *-le*, *-el*, *-ol*, *-al*. A teacher dictating a language phonetically spelled indicates by his utterance the letters to be used. In this way the reduction of unstressed syllables would be checked.

In the second place, our present spelling is, as a rule, taught in such a way that faulty ideas about sounds are inevitably inculcated. The teaching proceeds from the written, not from the spoken form of the language; the unknown is the basis, instead of the known. The letters are taught, the sounds neglected. Bad spelling is pointed out a hundred times for every time that bad speaking is noticed. The very names of our letters add to the confusion in the child's mind; and the confusion continues far beyond the early stages of learning to read and to write. It is often not until French is taught that the sounds of a word are discriminated; and the teacher of French is then called upon to do work which

should have been undertaken by the teacher of English long before. It is only, however, in recent years that French pronunciation has been properly taught in schools.—The older generation is extraordinarily ignorant of the sounds of the mother tongue, and often quite unable to split up even the commonest word into its sounds.

This neglect of the spoken language is closely associated with the indifference shown to articulation, breathing, a proper use of the vocal chords, and—to put it generally—clear and agreeable speech. It is a strange thing to visit a school and—as is not infrequently the case nowadays—to find that the pupils pronounce French clearly and well, while their English speech shows every possible fault. The teacher of French has trained his ears and his organs of speech, and knows how to train his pupils; the teacher of English still relies on imitation only, and, while often complaining of the trouble given by the bad speech of the pupils, is unable to apply a remedy. He is often faulty in his own articulation and voice production; he has rarely ascertained what is standard speech in English and in what respects the speech of his pupils deviates from this standard.

In the third place, we have the gravest drawback of all. At the outset of school life we have to give the child an instrument of the most varied utility. Reading and writing are the key to all subsequent work. Yet this very subject is in its present form altogether uneducational. The child is told that there is *i* (pronounced as a diphthong) in *bind*; that seems reasonable. But he also meets with *i* in *bit* (where there is a simple short vowel, very different from the diphthong). Similarly we say there is *o* in *go*; but we also say there is *o* in *gone*, and in *done*. We teach the child that the letter *l* stands for the sound *l*; but in *could* we explain that it stands for nothing. We make enormous claims on the memory; we demand accuracy at the expense of enormous effort. In order to fix in the mind spellings to which the sounds alone offer no adequate guidance we have to repeat again and again. It is here that time is wasted with no corresponding educational advantage.

It is idle for the highly educated to retort that they do not remember any effort on their part when they learnt to spell. We must think of the bulk of the nation, the thousands and tens of thousands who attend our elementary schools and come to school with the very poorest intellectual equipment. Children from refined homes and the children of the poor do not start with the same groundwork of knowledge, the same vocabulary, or the same powers of observation and reasoning. The school life of the great majority of these children is regrettably short. There is much that we ought to teach them for which we lack the time. If we could really simplify the task of spelling, how much time this would set free for reading! If we give them a simple but equally effective instrument, we can devote our attention to the use to which it can be put.

In the fourth place, we may consider the international aspects of the question.

On one hand, the bad habits of speech and hearing acquired present serious obstacles when our children proceed to study foreign languages. How long have we incurred the charge of being bad linguists! Yet it has been mainly a question of pronunciation. The Englishman is shy of making a fool of himself. He does not trust himself to speak the foreign language, because he is afraid of arousing ridicule by his bad pronunciation. And if his pronunciation is bad, it is largely because he received no proper instruction in the sounds of his mother tongue.

On the other hand, our spelling is very difficult for the foreigner. Our language is in many respects the most advanced of any; it is exceptionally simple in grammar and rich in vocabulary; it lends itself to the expression of the most simple and the most complicated ideas, to prose and poetry alike. Enshrined in it is the finest literature the world possesses. It is weak only in its spelling. Make that also simple, so that he who hears correctly may be able to write correctly, and nothing can stand in the way of English becoming the universal language for international use. That would mean an enormously increased circulation for all writings in the English language, a world-wide scope for English and American thought, and—we may add without undue pride—a momentous advance of civilisation.

To sum up:

The present spelling does harm

(i) in affording no check on rapid sound change;

(ii) in implanting faulty ideas about sound, and causing the neglect of the spoken language;

(iii) in necessitating much uneducational memorising, and in thus wasting time which is sorely needed for other purposes;

(iv) in hampering the acquisition of foreign languages, and in preventing English from becoming the language learnt in all countries beside the mother tongue.

In my second article I shall deal, in the first place, with the following objections to any change of the alphabet:

(i) A change would make words look queer, ugly, &c.

(ii) Words now differently spelled would be spelled alike, and this would lead to confusion.

(iii) The etymology of words would be obscured.

(iv) All books in the present spelling would become useless.

(v) It is good discipline for children to overcome the difficulties of the present spelling.

(vi) If the changed spelling represents the pronunciation and is to continue to do so, it must be altered every time the pronunciation changes; this would make the spelling inconveniently unstable.

These are the objections commonly urged; if any others occur to a reader of this article, I shall be grateful if he will forward them to me, so that I may deal with them so far as lies in my power.

## EXAMINATIONS AND NATIONAL EFFICIENCY.

WHILE Mr. Hartog's paper on Examinations (summarised in this issue: see page 102) is commendably thorough, it justifies its title by emphasising the selective function. As pointed out by two of the speakers during the discussion on it, the teacher's use of examinations as a part of school training is not even referred to, though it may not unfairly be said to be included under Mr. Hartog's fourth head, "To promote general culture." An experienced examiner like the writer of the paper cannot treat of the subject of external examinations without saying much that is of use to teachers, but, after all, in this particular case his interest is centred in the use of examinations as a means of testing capacity. He is thus brought at once right up against one of the most interesting problems of the experimental psychologist. Does the fact of being able to pass a particular examination give any evidence of power to do a certain kind of work? One can see how a practical examination of a medical student—including clinical work—does give some sort of guarantee of capacity as a doctor; but has a knowledge of classics, mathematics, and physical science anything to do with the government of a province? Is there not some justification for the attitude adopted by the candidate at a Civil Service examination, who, with the courage born of certainty of failure, gave the following answer: "I do not know the exact distance of the sun from the earth, but I believe it is far enough away not to interfere with my duties at the Home Office"?

Mr. Hartog does not discuss the nature of the matters on which candidates are to be examined. Probably he agrees with Mr. Bernard Shaw that "No man ever learns to do one thing by doing something else, however closely allied the two things may be." But in the present paper his interest is in the use of examinations as capacity tests. His real problem is therefore that of transferred capacity. Is capacity to pass examinations a guarantee of capacity to do other and quite different things? The affirmative answer implies the acceptance of the Carlylean view of the universality of genius. The great man is a great man in himself: he has great qualities, and these may be applied to one subject as well as to another. If Napoleon had not been a great general he would have been a great something else. Carlyle and experience are here on different sides, and Mr. Hartog rightly goes into the lobby with experience. All the same, there is a sort of residuum of general qualities guaranteed by success at examinations—such things as application and physical endurance. The chairman of an appointing committee was probably right in giving his vote to a candidate for a certain post on the ground that, though the candidate had no doubt forgotten most of the knowledge implied by his seventeen first-class Science and Art certificates, the fact that he had endured to the end

of these seventeen examinations proved that he had the dull commonplace qualities demanded for the post in question. But when we are dealing with what it is getting fashionable to call the governing classes in England we want to test for somewhat higher capacities, and here Mr. Hartog is not so hopeful about the usefulness of examinations.

Experimental psychologists are less pessimistic about their power to help. They may not only work out in more detail their scheme of testing the correlations of different subjects in their relation to general capacity—even at present this matter is in a more forward state than Mr. Hartog appears to think—but they will be able to provide the individual candidate with a card bearing certain numerical statements of the highest value in helping to determine the sort of work for which he is capable. This card will include the ergographic curve, which is now coming to be regarded as constant for the individual. The coefficient of memory would naturally appear, and, of course, the reaction time, and the personal equation in relation to some of the commoner reactions of life. What is being done at the present moment at the Vocational Bureau at Boston may be looked at askance by our hard-headed Englishmen, but when so keen a thinker as Hugo Münsterberg sees something in the new methods, we cannot treat them as negligible. To neglect any possible means of coming to just conclusions is the last thing of which one would think of accusing Mr. Hartog. No one is more fully alive to the need for more light on this subject. Indeed, the very purpose of the paper is to lead up to its final demand for nothing less than a Royal Commission to go into the whole matter, so as to get at the truth. Mr. Birrell told a deputation of private schoolmasters who tried to impress him by quoting the findings of Mr. Bryce's Commission, that "Nobody pays any attention to Royal Commissions nowadays." Mr. Hartog does not agree, and Mr. Hartog is certainly right. He has made out an excellent case for further inquiry, and all those who took part in the discussion cordially supported the demand for the Commission.

It means a great deal when a man of Lord Cromer's capacity and experience admits the need for further light on matters that he has himself had to deal with in actual life. Apart from the charm of his naïf autobiographical touches, with the informing light they cast upon the methods which he honestly repudiates, his speech contains much that arrests attention. His contrast between merely thinking for oneself and acting for oneself suggests a line of investigation that the experimental psychologists must not neglect. In describing the system of selection elaborated by himself in Egypt he made the significant statement that the choice was limited: "Candidates who are all taken from the universities." One is interested to know the denotation of "the universities": are we to understand the two universities, or is the training of the govern-

ing classes to be shared by the newer seats of learning? In the *Head Teachers' Review* for October someone writing under the name of "Anthropos" makes the suggestion more than half seriously that for appointments there should be first of all a panel made out of those who have the necessary qualifications, and then the actual appointments should be filled up as they occur, *by lot*. In Lord Cromer's case the university qualification would provide the basis of the panel, and aided by an interview a committee might quite well make up a permanent list of suitable candidates for possible posts. For normal appointments the order of seniority on the accepted panel could be followed; for rather special appointments special qualifications should be taken into account. At the present moment there are certain of the Civil Service appointments in which selection takes the place of competition. Even here there is a serious difficulty. One of the speakers in the discussion pointed out the dangers of the personal interview. We are too apt to think that there is something specially enlightening in an interview, and certainly it exposes things that may remain hidden in an examination paper. But it introduces new elements of possible confusion. Here as elsewhere we want more light, so we cannot but wish Mr. Hartog all success in his appeal for a Commission.

#### EDUCATION IN AUSTRALIA.

By Prof. H. S. CARSLAW, Sc.D.

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A FEW remarks on the attitude of the State towards education in Australia may prove of interest to those outside her bounds who follow educational questions. In all the States we have a satisfactory and efficient system of primary education under the Departments of Public Instruction: a system which is now compulsory, free, and secular. But this last word is used in a wider sense than is customary, and its interpretation varies in the different States. In New South Wales, Western Australia, and Tasmania, the term "secular instruction" includes general religious instruction as distinguished from dogmatic and polemical theology; and the representatives of the Churches are permitted to give special religious instruction *within* the regular school hours at times to be arranged.

In Victoria no such general religious instruction is given, but special religious instruction by the representatives of the Churches is allowed *outside* the regular school hours. In South Australia the Victorian arrangement holds, except that the Minister for Education, upon the written request of parents of not fewer than ten children attending the school, may require the teacher to read portions of the Bible, to such of the pupils as may be sent by their parents, for not more than half an hour before the regular opening of the school. Also in Queensland the Victorian system

is in operation, but in that State some change will in all probability soon be made. In April of last year a referendum was taken upon this question of religious instruction, under the Religious Instruction in State Schools Referendum Act of 1908. The ballot paper was as follows:

BALLOT-PAPER.

Are you in favour of introducing the following system into State Schools, namely:

The State schoolmaster, in school hours, teaches selected Bible lessons from a reading book provided for the purpose, but is not allowed to give sectarian teaching:

Any minister of religion is entitled, in school hours, to give the children of his own denomination an hour's religious instruction on such day or days as the School Committee can arrange for:

Any parent is entitled to withdraw his child from all religious teaching if he chooses to do so?

YES.

NO.

If you desire Religious Instruction in State Schools, vote thus:

YES.

NO.

If you object to Religious Instruction in State Schools, vote thus:

YES.

NO.

A majority of votes, though not a large majority, was recorded in favour of the alteration; and at the time of writing the Queensland Government is engaged in putting through the Houses of Parliament a Bill to effect this change. Though it is probable that a majority of the members are personally opposed to this step, the Government seems to feel itself bound to carry out the expressed will of the people. If this is done, there will possibly be some protest on behalf of the minority, including as it does the leaders of the Roman Catholic Church, which in all the Australian States still spends large sums of money on the upkeep of its own schools, while none of the denominational schools now receives any support from the public funds.

Before passing from a topic which has little to do with the real subject of this article, it is perhaps right to add that the same question has been raised in Victoria, and persistent efforts have been made to effect some change in the "secular" position taken up by that State.

Happily, the subjects to which I wish to refer lie outside the domain of sectarian controversy. With our system of State primary schools we may well be content. Even in the face of many difficulties in the more thinly populated or newly settled districts, the benefits of elementary education have been brought within the reach of the people of the land. Also arrangements for the adequate training of the teachers have now been

made in most of the States. With the foundation of the new University of Queensland, the provision which is still lacking in that State will soon be supplied; and in Western Australia this work, which is at present done in the normal school, will probably before long be carried out in a Teachers' College, in some way affiliated to the University which the Government of that State will doubtless found, as soon as its finances render such a step possible. This system of primary education has been gradually built up to meet the various needs of the city and town, the small township, and the bush. In all the States it is a centralised system, controlled by the Departments of Public Instruction in the capital cities. The teachers are Civil Servants, paid exclusively from public funds. Attendance is compulsory between certain ages, except in the case of children receiving instruction elsewhere.

Any wholly centralised system is bound to carry with it some disadvantages. Even the creation of school committees, under different names, does not succeed in establishing the close relation between the district and the school to be found in many other countries. Prof. Schachner, of Jena, refers to this question in his book, "Australien in Politik, Wirtschaft, und Cultur," a work which is the outcome of two years' residence in this country, and well repays reading, though it hardly does justice to the aims and influence of our universities. He considers the Australian system less satisfactory than that of New Zealand, where district education boards and school committees administer the schools. However, it must be remembered that New Zealand is a much smaller land with a denser population. Its towns are more numerous, though mostly small, and they are close to one another. Indeed, in many respects the conditions in the Dominion closely resemble those of parts of the Mother Country. In Australia, on the other hand, we have a land larger than the United States of America, while its population does not yet reach five millions. Two of the capitals—Melbourne and Sydney—are cities of more than half a million. Yet there are only twenty-five towns of 10,000 inhabitants and upwards. Indeed, the country is still so sparsely peopled that local government is possible only in a limited sense, and the time has certainly not yet arrived when such a provincial system as that of New Zealand, or the County Council system of England, could be adopted.

In educational matters, the lead is naturally taken by Victoria and New South Wales, the wealthiest and most important States. But it must be remembered that the conditions of life, and the nature of the climate and territory, vary so widely as we pass from one State to another, that it is difficult to write in general terms of such a problem as that with which I am dealing. The tendencies and ideals are the same in all. The extent to which these ideals may be realised differ widely. In what follows I shall confine myself to Victoria and New South Wales. In

both there are at the present time signs of progress on somewhat similar lines. A progress which dates from the inquiries into educational matters in Europe and America of special commissioners and others, towards the beginning of this century. It is admitted that the time has arrived when the State must concern itself more fully with the higher forms of education as well as the lower. The Departments of Public Instruction must no longer remain departments for primary education alone.

This question of education fortunately lies outside party politics. Upon it all parties are almost completely in accord. If there is one fundamental point upon which debate may be heard, it is probably the question of the extent to which the State ought to make the benefits of higher education equally available to all the people. The Labour Party prides itself on standing for equal opportunity for all. And in the sphere of education it asks for free education from the primary school to the university. The first step in this direction was taken some time ago in all the States, when primary education was made free. The next has now been taken, at any rate in New South Wales; for the Liberal Government, shortly before it left office, abolished all the fees in the State high schools, and promised a wide extension of secondary schools in the country districts and a fuller system of bursaries and scholarships to render the path to the university easier for the abler children of people of limited means. It also increased the subsidy of our university on condition that a part of the additional grant was expended in reducing the fees in all the faculties.

Turning first to Victoria, we find that the Government of that State has introduced into the Legislative Assembly an Education Bill which it hopes shortly to pass into law. The object of this measure is to provide a properly co-ordinated system of education from the primary school right up to the university. Provision is made for higher elementary schools, for trade schools, and for continuation schools; also for a more satisfactory regulation of technical education. In addition to this increased activity on the part of the State, fuller support has also been given to the University of Melbourne, and the grants which it has lately received are being expended on the foundation of new chairs in the Faculty of Arts and in making further provision for the study of agricultural science and the prosecution of scientific research. It is a curious thing that in this country of many political experiments, none of the universities can boast of a chair of political economy or political science, and that the Government of Victoria will probably be the means of such a professorship being at last founded.

Another point to which reference should be made is that in Victoria some years ago an Act for the registration of teachers and schools came into operation. Through the Council of Education it is now able to do something towards increasing the efficiency of the private schools, where such

increase is called for. Further, Victoria has been fortunate in possessing, especially in Melbourne and Geelong, some excellent private schools of the highest class, and it is to be hoped that no Government activity in that State or any other will lessen the useful service which such schools render to the cause of education. That the State must greatly increase its work in secondary education all will admit; but the need for, and value of, private schools will still remain.

In New South Wales the position is equally interesting. Shortly before the last election, as I have already mentioned, the Liberal Government placed before the people its educational policy; a scheme for the extension of secondary schools in town and country; for the creation of trade and continuation schools; and for fuller provision for technical education. As the result of that election, for the first time in the history of the larger States, a Labour Government is now in office. The official pronouncement upon education has been received with interest:

The present Government, recognising that economic reforms are of little value without increased educational facilities, attaches supreme importance to educational reforms. "A man might have access to land, facilities of travel, industrial energy, credit, economic security, and justice, and yet true equality of opportunity might be lacking. The society where all these liberties have been won might be sunk in the stagnation of conservatism, and might even breed new forms of inequality and tyranny." Every improvement in economic conditions should be accompanied by an effort to raise the standard of intelligence, and this will only be achieved by the State recognising its ever-increasing responsibility to provide increased educational facilities.

The Government believes that the people of this State will cheerfully support any proposal for a large increase in the education vote so long as the money is wisely spent, and will make every effort to carry out the reforms indicated.

In the provision of these increased facilities for higher education the Labour Party evidently does not intend in any way to lag behind its predecessors. Indeed, it has adopted the greater part of its programme, and its opponents assert that, so far, at any rate, as the schools are concerned, there is nothing in the proposals of which they had not themselves approved. Perhaps it is not surprising that it will devote more attention, in the first place, to that great majority of boys and girls who leave school at an early age, and have not the opportunity, or are not adapted by inclination or capacity, for professional careers. Suitable provision for this class is deemed more urgent than the immediate extension of the work of secondary education. It proposes to inaugurate, with as little delay as possible, continuation schools, chiefly for pupils from fourteen to sixteen years of age, in which suitable courses would be given to those leaving the primary schools at the age of fourteen or thereabouts. Further, it has decided on the establishment of trade schools to supplement workshop practice, for pupils under the

age of eighteen, and will largely extend the technical schools. To permit of these reforms an alteration is proposed of the industrial laws to provide for the shortening of the working hours of boys and girls up to the age of eighteen, and their compulsory attendance at school for a number of hours each week. Special training in domestic economy, hygiene, and other congenial subjects, will be provided for girls. To some extent it seems inclined to postpone the promised extension of the secondary schools, pending the consideration of some scheme in which the private schools, now doing good work, might find a place as recognised but self-controlled units in the general educational system.\* And it certainly seems to attach most importance to the inauguration of continuation and trade schools, and the changes in the industrial laws which will be necessary to make this system effective.

Some significant sentences are to be found in this pronouncement of the Labour Government in N.S.W. regarding the University of Sydney. This institution receives liberal aid from the State, but about two-thirds of its revenue is still derived from other sources. A much larger measure of support from the public funds is recognised as inevitable. But before any serious increase in subsidy is granted, the Government considers that reform in the constitution of the governing body is necessary. Indeed, such a measure of reform was proposed by the Liberal Government, and it is likely that some change in the constitution of that body will soon be made, allowing for Government representation upon it. When further moneys are available, it is proposed to grant them on the condition that a substantial portion of the amount is expended in providing for night and extension lectures, and the remission of fees. It is also proposed to make additional grants, particularly for scientific education and research, and "higher education in practical subjects."

Noticeable in this statement is the resolve to make the path from the primary school to the secondary school and the university one for which ability and industry are the only passport. And arrived at the gates of the university the State will help the student of limited means to carry his studies to the higher stage, and gain from the university that which it should be able to bestow. In this community, at any rate, few would question the wisdom of such a reform. In no way will the standard at entrance be lowered, and only he who has the necessary ability will be permitted to profit by the change.

However, the reference to "higher education in practical subjects" is typical of the attitude of many towards education, and the universities of Australia have to set prominently before the people the ideal of culture and scholarship for their own sakes. Our universities are continually in danger of becoming little more than training grounds for the professions. For the technical university of Germany there is, of course, a proper place in its educational system, which is the cause of much envy to other people. But the highest type

of university is quite different from a glorified technical school. It must concern itself with all that is best and greatest in culture and scholarship, and one of its chief characteristics must be devotion to the liberal studies in the widest sense of the term. And so far as their resources have permitted, the Australian universities, most, if not all of them, have stood for such ideals. However, in the minds of the founders of the newer universities in the younger States there can be observed a tendency unduly to exalt the utilitarian side of university work. Such an attitude is perhaps natural where there is such an urgent call for the aid of science in the proper development of these States. Possibly also the advocates of the classical studies are partly to blame; for the classical tradition presses heavily on the schools in some of our entrance examinations, and every relaxation which is obtained is only granted after a prolonged struggle. But in no place more than a democracy such as ours is there a greater need "to arrive at a full and right conception of things, to know one's self and the world—which is knowledge." And the message which Matthew Arnold kept repeating to the people of England thirty years ago is much needed in Australia to-day.

I have said nothing about the provision of scientific instruction in agriculture. In several of the States the Governments have founded agricultural colleges in which most useful work is done in this direction. The Hawkesbury College of N.S.W. is known outside the borders of this State, and also beyond Australia. And in recent years the Universities of Melbourne and Sydney have been enabled, by grants from the public funds, to found agricultural departments in which higher instruction in agricultural science will be given, and the most important problems peculiar to agriculture in this land submitted to scientific investigation and research.

For the other great primary industry of Australia provision is also made. Many men now occupying important positions in the mining fields of Australia have received their professional and technical training in one of the mining schools attached or affiliated to the universities.

Before the British Association visits Australia in 1914 much may have happened in the sphere of education. But it is perhaps not out of place to express the hope that a strong representation of leading educational authorities will come to us in the Educational Science Section of that Association. Their presence, inspiration, and advice would prove of the greatest value to the cause of education in all its branches throughout the Commonwealth.

*Notes on British History.* By W. Edwards. Part IV., 1783-1901. xii+409+ xvii pp. (Rivingtons.) 4s. 6d. net. —We have previously noticed Mr. Edwards's notes on the earlier parts of British history. This is a continuation, and shows the same excellences. We know no better work of its kind. There is a page of "errata" referring to the other parts; and we would suggest to the author that the original "Holy Alliance" was not adopted by anyone. What took its place caught its name.

## A SCHOOLMASTERS' FUND.

THE position and prospects of teachers in secondary schools have attracted considerable attention during the past few years, and if any comment were needed upon the seriousness of the situation as it has appeared to those versed in the history of education in England, it could doubtless be supplied by the Society of Schoolmasters. This society, not perhaps so widely known to schoolmasters as it should be, has during the past ninety years endeavoured to come to the assistance of schoolmasters and their families who have fallen upon evil days. In this country it is notorious that, with the exception of a limited number of prizes, the inducements held out to men of intellect and energy by the career of teaching have seldom been sufficiently attractive to draw towards the profession an adequate supply of those who possess the necessary qualifications.

The chief conditions which have militated against the teaching profession as a career have been the lowness of the remuneration offered to those on the lower rungs of the ladder compared with that obtainable in other professions, and indifference on the part of the public to the position of the schoolmaster and to education generally. The writer held an instructive conversation a few years back on this subject with a Hungarian Deputy of Parliament who was over in England for the purpose of inspecting our school system. Amongst what appeared to him to be the many defects in our scholastic system were the utterly inadequate salaries offered to those to whom we entrust the formation of the character and general training of our youth, and the want of due recognition given to the importance attaching to the social status of the schoolmaster. The result of the slender remuneration and insecurity of tenure hitherto granted to assistant-teachers in our secondary schools has long been too painfully evident to the managers of the Society of Schoolmasters.

This society appears not only to be little known to the public generally, but also to the profession for whose benefit it has laboured unostentatiously for so many years. When it was first formed, exactly one hundred and thirteen years ago, it was established on a principle of life assurance, and its benefits were confined to such subscribing members as were masters of endowed and boarding schools.

The beginnings of most organisations are full of human interest, and those of the Society of Schoolmasters are no exception. On January 12th, 1797, a meeting of masters of boarding schools was held at the Crown and Anchor Tavern in the City, at which "it was agreed that a committee should be appointed to deliberate upon such measures as might be deemed useful or interesting to the profession." Thereupon a committee of twelve was appointed, with the Rev. Dr. Barrow as chairman, and this committee met from time to time in order to consider the best means by which :

(1) A fund should be established, and under what regulations such fund should be employed for the benefit of the widows and children of deceased schoolmasters, and for the relief of such schoolmasters themselves as age, infirmity, or other misfortune may render incapable of pursuing their occupation;

(2) To inquire by what means the profession may be served with books and stationery on the most advantageous terms; and

(3) To consider by what means the profession may be most conveniently supplied with assistants and extra masters of abilities and reputation.

It will be seen, therefore, that the originators of the society had in their minds not merely a benevolent fund, but an organisation for the protection and promotion of the interests of the profession. With this end in view, Dr. Barrow and another member of the committee were deputed to ask for an interview with Mr. Pitt, then Chancellor of the Exchequer, for the purpose of submitting to his consideration the hardships to which the profession would be subjected by the proposed augmentation of the assessed taxes. Their reason for opposing these taxes was principally based upon the fact that schoolmasters inhabited large houses with an extraordinary number of windows for the purpose of their profession only. They remained foremost amongst the objectors to the unpopular window tax, and had the satisfaction of being granted the relief they sought.

On January 18th, 1798, a general meeting of schoolmasters was held at the Crown and Anchor Tavern to receive the report from the committee. A list was then drawn up, containing forty-one names as members of the Schoolmasters' Society for the benefit of the widows and children of deceased subscribers. A committee of nine was elected, with the Rev. Dr. Barrow as chairman, to manage the affairs of the society, which was now fairly launched. The annual subscription was fixed at five guineas, and each member of the society had to be the master either of an endowed school or a boarding school. Subscribers of this description only or their families were entitled to the benefits of the fund. As a society for the benefit of survivors, the widows and children of deceased members were eligible for a share of the fund, whatever their circumstances.

The Standing Orders of the committee throw an interesting sidelight upon the habits and customs of a hundred years ago. On the days of their meetings the committee dined together at five o'clock, and in those leisurely days dinner was a more important function than it is now. It is provided by one of the standing orders that "no motion of business whatever relative to the affairs of the society shall be brought before the committee after dinner." Our knowledge of the habits of the time enable us to realise the sweet reasonableness and desirability of such a standing order. These meetings, as well as the anniversaries of the society, were celebrated with a conviviality which no doubt would have placed schoolmasters in quite a new light to their pupils could they have seen



them on these occasions. Songs to the airs of "The Roast Beef of Old England," "A-begging we will go," and "The Yellow-haired Laddie" graced these festivals; and lest the spectre at the feast should feel neglected, a propitiatory dirge was sung to the air of "Since then I'm doomed."

The institution continued to prosper as an assurance society, augmented by voluntary subscriptions, until some doubt arose as to the plan upon which it was established being a safe one. The augmentation by voluntary subscriptions rendered accuracy of calculation less necessary than it would otherwise have been. A member of the Equitable Assurance had directed the attention of the management to the mistake of having altered the original plan of the society. The constant changes in plan were likely, he alleged, to lessen the credit and ultimately destroy the usefulness of the institution; yet he considered that the society as then carried on (1817) was so far secure as to render any drastic change unnecessary. It was without doubt perfectly solvent, but the differences of opinion as to the adoption of some new scheme of assurance led to the dissolution of the assurance society after an existence of twenty-three years. The charitable fund was continued, and now received a considerable accession through donations from many of the surviving shareholders of the joint stock, amounting to more than £14,000, who gave up their share to it. The last meeting of the committee at the Crown and Anchor was held in December, 1824, and from that date the quarterly meetings have been held in the chambers of the Royal Literary Fund, which are now at Denison House, Westminster.

Five years before the dissolution of the assurance society, Prince Louis Philip, Duke of Orleans, who had been a teacher of mathematics near Coire, in Switzerland, wrote to the treasurer "that among the motives which made him feel an attachment to schoolmasters was that of having been himself once a member of the profession. It was one of the many vicissitudes of fortune which had fallen to his lot that, at a period of severe distress and persecution, he had the good luck of being admitted as teacher in a college, where he gave lessons regularly for the space of eight months. He hoped, therefore, that the Society for the Relief of Distressed Schoolmasters would permit him to tender his mite as a fellow schoolmaster." The public generally, during the earlier years of the society's existence, supported it liberally, and it was by the agency of their support that the purely charitable fund gained a stability which has enabled it to continue to the present day. The assurance fund was entirely supported by schoolmasters themselves, whose families alone were entitled to its benefits.

At the date when the society became a purely charitable institution it possessed a capital of £4,000 in the 3 per cents. This charitable fund was intended for general relief, and the aid which had previously been limited to subscribers was extended, on the dissolution of the original society, generally to the masters of endowed and boarding

schools. It was intended, should the fund attain considerable dimensions, "to give rewards and premiums to ushers of distinguished merit and ability." This intention was not carried out, but at the back of it no doubt was the belief that such a scheme of rewards and premiums would give rise to an improvement in the prospects as well as in the stamp of some of the teachers in the smaller schools.

Notwithstanding the wealth of the country at the present time, obviously it was easier a hundred years ago to obtain and retain support for an institution of this nature than it is now. Where there was one organisation for the help of distress then, there are probably fifty or more now, and in the multiplicity of demands that make the breakfast-table of the well-to-do groan every morning, it is little wonder that many institutions, however deserving may be their objects and excellent their accomplishments, are overlooked. Exactly one hundred years ago a well-wisher issued an appeal on behalf of schoolmasters. The existence of the Society of Schoolmasters was brought to his notice by an occurrence in a school where he had two sons. The family of the master, consisting of six children, was left totally destitute. He and other parents were asked to contribute to their relief. The committee of the Society of Schoolmasters commenced a subscription among themselves, for the institution, then in its infancy, had little funds to afford much relief. The result of the appeal then made was the collection of nearly five hundred pounds.

Such cases as the one just recited are painfully common at the present day, yet so great is the competition and so numerous are the demands in one direction or another that they fall upon irresponsible ears and unloosened purse-strings. From time to time appeals have been issued, but with no such gratifying response as the one just mentioned. The management, feeling that primarily, if not wholly, the objects of the society are of importance to members of the profession themselves rather than the general public, has of late years appealed for support chiefly to the profession for whose welfare it was established. To these appeals some of the leading public schools have responded with no small generosity, and only recently the Headmasters' Conference has displayed further evidence of its interest in the continued success of an institution which has never been rich by contributing another handsome donation to its funds.

The multiplication of schools engaged in secondary education, in few of which the staff is able to make any provision for old age or failing health, renders the existence of the society increasingly necessary. The fact that priority of consideration is given to applications from subscribers, or from masters in schools the staff or governing body of which subscribes, would no doubt be an additional impulse, if more generally grasped, to members of the profession to give more adequate assistance to meet the growing demands which, like Oliver, are always "asking

for more." During the past twenty-five years the numbers of applicants have shown a steady tendency to increase. This tendency was no doubt due, in the first instance, to the competition of the Board schools, which told heavily upon some of the small private ventures. The need for the latter no longer existed, and their extinction became inevitable.

The increased number of applications, which during the past quarter of a century has nearly doubled that of the previous quarter, has so far shown no evidence of diminishing, and during the past twelve months the amount distributed in relief has exceeded that ever given in any previous year. A further reason for the greater call upon the funds of the society is to be found in the widening, some twenty-eight years ago, of its basis and the alterations effected in its rules. At the annual Conference of Headmasters held in London in 1882, a committee was appointed to consider what alterations could be effected in the rules of the Society of Schoolmasters so as to render it more popular and useful. After conference between the committees of the two bodies, considerable alterations were made in the rules of the latter. Membership was extended to subscribers of not less than half a guinea for two consecutive years, and masters of proprietary schools, hitherto excluded, were admitted to the benefits of the society, which were extended to masters of all schools not coming under the Elementary Education Acts.

Though, as has already been stated, the society is principally dependent upon subscriptions from schoolmasters, it has in the past received liberal and valuable assistance from friends who have not been members of the profession; but it is not a little remarkable that it has not received a single legacy for a period extending over fifty years. The last bequest received was one of £1,000 in the year 1867, when the permanent fund was increased by the addition of that sum. This fund now stands at £8,953, or only a few pounds more than in 1867. Yet with an assured income of such small dimensions as that produced by this capital the management has been able to distribute no less a sum during the past ninety years than £33,499 to 3,331 beneficiaries.

The more widely an institution is known, the larger, no doubt, will be the demands made upon its resources, but concurrently with this increased demand there will assuredly grow a fuller supply to meet it; and the appointment by schools of corresponding members to the society from schoolmasters on their staff would probably lead to a number of such masters becoming subscribers to the society. It is too frequently the case that schools have no scheme of pensions for members of their staff, and the governors are precluded, as governors, from rendering any help to a bereaved family. It is in cases where no such help is forthcoming that a society like that of the schoolmasters can and should step in. The prospect of a life of even modest comfort in declining years is a somewhat painfully remote one to those whose rate of payment is so exiguous that any provision for the future is quite beyond their means.

## SCOUTING FOR BOYS IN HIGHER SCHOOLS.

By HAROLD F. BEETON, M.A. (Oxon.),  
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THE teaching profession, taken as a whole, is intensely conservative in its views as to what are appropriate institutions in the modern school. Unkind critics might even go so far as to say its efforts to provide corporate activities for the children were tinged unconsciously with snobbery. The fact remains that in recent years, while the resuscitated grammar schools and minor public schools, as well as the new municipal schools, have been flooded with ex-elementary scholars, chiefly the sons of small tradesmen and artisans, and living at home, the public-school model has been assumed by headmasters and assistants alike to be the only correct one.

This is hardly surprising, since the staffs of all these types of school are predominantly men strictly brought up to public-school and university traditions, and are, for obvious reasons, not always the most liberal examples of their kind. Meanwhile, perhaps, the results are not always exactly what they seem. To be sure, the conventional cricket and football matches, annual sports, and the like make a brave show in speech-day reports and school magazines; but these advertisements do not prove the existence of the public-school spirit. Those observers inside the pale alone are able to realise that the, often positively heroic, efforts of responsible masters to encourage compulsory games in the face of financial difficulties and counteracting home influences—embarrassments unknown in public schools—often fail to achieve more than a very qualified success, and sometimes even tend to defeat their own objects. Business managed by the senior boys at public schools, where the leaving age is eighteen or nineteen, inevitably falls into the hands of masters in schools where there are few pupils of over sixteen, and the training in self-government is lost.

Modern games, if they are to make any impression, are expensive, and the subscriptions in many new and reformed schools bear an undue proportion to the amount of the school fees, and are grudgingly paid by the parents. Attempts to compel boys to turn up on the field three or four days in the week often meet with passive resistance from a class of parents which, even in England, is least of all apt to regard games as a factor in the equipment of their sons for a practical career. The division of the school into "houses," in imitation of the boarding-school system, is at best an artificial one, and does not always produce the desired effect of stimulating healthy rivalry. In a word, the day-school boy who does not care for games manages somehow or other to escape them, either sheltering behind an obliging doctor or an indulgent parent, or else running the risk—usually a slight one—of spasmodic punishment at the hands of an exasperated captain.

In the face of these increasing difficulties, may we not pause to consider whether after all the game is quite worth the candle? Laying aside

for the moment our national fetish and our public-school prejudices, is it not the schoolmaster's duty seriously to consider whether it is not possible to substitute for the eternal round of cricket and football some interest more comprehensive, more serious, cheaper, and at the same time more adapted to building up the character of the type of boy with which we have to deal? For the elementary-school boy, as well as for those who have left school and are out in the world, the problem, we may fairly say, has already been solved. Sir Robert Baden-Powell's successful movement, in the face of all difficulties of organisation and the scarcity of helpers, has given over 500,000 boys throughout the British Empire, irrespective of wealth, rank, or religion, all the moral training of a public school, and more. By the simple method of gilding the pill of duty with an appeal to the sense of adventure and romance, not far below the surface of every British boy, he has enrolled a legion of future citizens bound by the honour of their craft to a code of endurance, discipline, patriotism, obedience, friendship, and duty. The boy scout has learned to "play the game"; but it is a game so fascinating that it raises no question of "compulsion," and one that needs no academic argument to prove its ethical value.

The Boy Scout movement has not left the higher schools unmoved, for all that common-rooms may ignore it. The boys have settled the question for themselves. There is a legend—*ben trovato se non vero*—that even Etonians have not been proof against its allurements in the holidays. Several public and grammar schools have already yielded to the inevitable, and possess flourishing troops of scouts of their own. Among them may be mentioned Denstone College—which also has an O.T.C., altogether separate—the Perse School, Cambridge, Dover County School, Buxton College, the Royal Grammar School, Lancaster, Wigan Grammar School, Queen's College, Taunton, and Newport (Salop) Grammar School. Yet there are plentiful indications in the *Boy Scouts' Headquarters Gazette* that secondary-school boys are often not only not encouraged, but positively deterred from becoming scouts. A report comes from a preparatory school that a troop has been formed among the boys and some good work done, "although the authorities are not partial to scouting." A commissioner in London complains that he often hears of scouts in one large secondary school being taunted by their form-master for mistakes in class with the words, "Well, what else can one expect from a scout?" A private school headmaster, mentioned by the artless editor *magna cum laude*, boasts that his pupils do a great deal of scouting in the *Easter term*. Doubtless it is a good enough advertisement during that dreary period which comes between football and cricket; but in the summer term or in October it would be nothing less than sacrilege!

Yet there are points in the boy scout movement which make it especially suitable for higher schools. First, and most important, it is knock-

ing at the door, and it is futile to ignore it, particularly where it is difficult to keep up the games in any case. Secondly, it provides an organised scope for the hobbies of the somewhat bookish boy who does not take to the ordinary ball-games, and consequently tends to become solitary, mischievous, or morose, for want of society and encouragement. Again, it effectively solves the difficult case of the ex-elementary scholar who resists all efforts to turn him into a public-school man, possibly loafs about the streets on half-holidays with undesirable companions, and drives the games master to despair, making gloomy and self-condemnatory observations about silk purses and sows' ears. As a scout he is forbidden by his own law to be a snob, and so keeps up the acquaintance of the best of his old schoolfellows in other troops, while taking a part in the corporate life of his new school.

At the same time the troop, if strong enough, is an effective bulwark against the worst feature of the new type of grammar school, "cliqueyness" between boys of different social grades, or between boarders and day boys. Finally, by running a scout troop of its own, the higher school can set an example to its neighbours by leading and encouraging the movement in its district, and the boys themselves have a valuable training in social service if this object is kept before them. In one district which has come under the writer's observation, virtually no start had been made until the local grammar school became possessed of a scout troop, and now new troops are springing up on every side. The senior grammar-school scouts are ardent propagandists, and some of them have worked most assiduously in starting and training detachments of younger boys in the neighbourhood.

The lack of scoutmasters of suitable influence and attainments is certainly the weakest point in the progress of the movement, and the secondary schools, by sending out boys who, when they leave, are already trained scouts, and are keen to continue the exercise as officers, may do much to remedy this evil.

It is unnecessary to dwell on the military aspect of the boy scout movement, because this is not acceptable in all quarters, and because the Chief Scout insists constantly that it is one of his least essential objects. But to those who object that the formation of scout troops in our higher schools is likely to interfere with officers' training corps, we might reply that the great majority of secondary day schools will never possess cadet corps, chiefly for financial reasons: they are essentially an institution for public schools in the narrower sense. On the other hand, those who have the interests of the Territorial scheme at heart will admit readily that boys trained in scoutcraft at school are far more valuable recruits, either as officers or in the ranks, than those who have spent all their leisure time on the playing fields.

It remains to be considered how a troop of boy scouts is best managed in a secondary school.

The scoutmaster will probably be one of the staff, but it is even better if an old boy can be got to run the troop, since the younger lads are apt not to realise that school discipline and scout discipline are different things, and it is some time before the shy ones get on those terms of frank intimacy with a master which is essential to the scout spirit. But if a master undertakes the organisation, he should *ceteris paribus* be one with whose school work the scouting correlates. Thus the science master can carry out a course of nature study in the subjects which in scout parlance go by the name of "stalking"—study of animal and bird life, botany, &c.—besides giving his scouts instruction towards their aviator's and astronomer's badges; the mathematician's help is invaluable in land-surveying and map-making; the history teacher can make his lessons in the class-room appeal to the scout's patriotism and loyalty to Empire and fatherland; even the modern language master can encourage his troop to try for their interpreter's badge. If possible, two masters should share the work between them, or, in default, one of the senior boys should act as assistant scoutmaster or "troop leader," to take recruits' instruction and leave the scoutmaster free on occasion to superintend the work of the older scouts.

Time is always a serious object, especially in day schools, and it is fairly certain that, if the scouting is to be taken seriously, either homework or games will suffer. The former being out of the question, the best plan is frankly to recognise the latter fact, and make scouting an alternative to other school games, limiting the troop if necessary to a definite maximum strength—forty is about the utmost that can be managed satisfactorily by one scoutmaster working with one or two assistants. The ordinary games subscriptions of the members will then form a valuable troop fund for the purchase of camp equipment, ambulance outfits, and the like. The Board of Education, which now insists on provision for some kind of organised games in secondary schools, would doubtless recognise a registered troop of Baden-Powell boy scouts as satisfying its requirements, if properly approached on the subject.

With regard to the relations between the school troop and other units of boy scouts in the district, difficulties may sometimes arise out of the times available for field work; but the school should endeavour, above all things, to turn out to general parades, field days, and inspections organised by the local association, and generally to avoid any suspicion of cultivating an exclusive spirit. This is an additional reason for exempting scouts from compulsory school games, since most troops can only turn out on Saturday afternoons.

It is very desirable that the headmaster should be induced to accept a seat on the local scout committee, or otherwise to interest himself practically in the movement as a whole. Very good results have been achieved in a large town near London, where, after some opposition at first, the principals of all the secondary schools, public and private,

held a meeting and passed a resolution in favour of the movement, while the headmaster of the large and influential grammar school is an enthusiastic member of the local scout association, although his school has a large cadet corps and the standard of work and games is alike high.

What is needed chiefly at the present time to promote the interests of the movement in higher schools is a conference of the representatives of those secondary schools which run scout troops or are otherwise favourable to the cause, with a view to the exchange of ideas upon the movement as it affects the schools, and more particularly to consider such questions as the interference with compulsory games, the best methods of organising troops and patrols, the relation of the school units to the movement as a whole, and the desirability of holding a public schools scout camp. If those concerned could be induced to ventilate their opinions in one of the educational magazines, a beginning might be made in this direction.

## THE PURSUIT OF KNOWLEDGE.

By Prof. R. A. GREGORY.

### I.—MOSQUITOES AND MAN.

IT has been pointed out by leading representatives of science and of education, on more than one occasion, that the tendency in recent years has been to make all science teaching in schools a matter of measurement, to the neglect of the human aspects of the pursuit of natural knowledge. The fault, of course, is not with the teachers, but with the syllabuses they are constrained to follow. All the time available for instruction in science is taken up by the practical work in the laboratory and in the assimilation or summarising of facts learnt there or in the classroom. There is little time to devise experiments which are striking without being directly instructive, to give interesting demonstrations, or—most important of all—to take excursions into the fairy-land of science and see what the wonder-workers are doing.

Modern science teaching is, in fact, inclined to be narrow and special rather than broad and catholic. Too much attention is given to measuring and weighing and recording, and too little to the philosophy and the spirit without which the lessons are as Dead Sea apples. Practical work should bring appreciation of the precision and method of science, but, in addition to this instruction, some attempt should be made to cultivate interest in achievements of research outside the school walls. In most schools the crowded curriculum will probably not permit of this extension of the intellectual field, but opportunities may arise in leisure hours—few though they be—to create and foster sympathetic interest in things accomplished purely by the pursuit of natural knowledge. With this object in view, it is proposed to describe in two or three short articles the outstanding points of faithful scientific work

in several directions which have contributed to the advancement of civilisation and the comforts of the human race.

If it is better to save life than to destroy it, then laud and honour should be given to those patient scientific investigators whose studies have shown how to lessen human suffering and prevent the spread of fatal diseases. Before a disease can be prevented it must be understood; there must be a knowledge of its nature and mode of transmission if a sure remedy is to be found, and that knowledge is obtained by the man of science, working often under discouraging conditions and usually without reward.

No better examples could be found of the benefits of such work to the human race than are afforded by the studies of tropical and other diseases carried on in recent years. Perhaps the most important of these diseases is malarial fever, which causes the death of more than a million people yearly in India alone. Until a few years ago it was believed by most people that malaria was caused by some kind of vapour or "miasma" which rose from swampy or marshy land. It is now known to be transmitted by a certain kind of mosquito which can harbour the germs of the disease and convey them from one person to another.

This conclusion seems simple enough, but it was only proved to be true by slow steps and persistent work. The theory that mosquitoes are carriers of disease, and that malaria is transmitted by them or flies, was put forward fourteen centuries ago and was revived in more modern times, but systematic practical study was necessary to establish it. The links of evidence by which the mosquito has been convicted of causing many millions of death from malaria were only forged together in recent years.

First, a French man of science, named Laveran, discovered that the blood of a person suffering from malaria always contains a peculiar parasite or organism. Sir Patrick Manson then suggested that these parasites pass a part of their existence in the bodies of gnats, which carry them from one person to another. When in the blood of a human being the parasites are in a certain stage of development, but they can only complete their life-cycle in the body of a mosquito.

To Prof. Ronald Ross belongs the honour of tracing the various stages of the existence of the parasite in the body of the mosquito until it was ripe for injection into a human being by the bite of the insect. He proved by numerous experiments that the only means by which a healthy person can acquire malaria is by the bite of a mosquito which has previously bitten someone whose blood contains the particular organisms associated with the disease. In other words, if there were no mosquitoes of the kind required by the malarial parasites to complete their life-cycle, there could be no malarial fever.

The cause of the disease having been found, the remedy was evidently to stamp out the mosquito,

so far as possible, by searching out its breeding-places and destroying the larvæ in them. This is not so difficult as it may appear at first sight, because the larvæ can easily be distinguished in the puddles and other collections of stagnant water in which they occur. By carrying on a vigorous campaign against mosquitoes, many very malarious places on the earth have been made habitable, and prosperous townships are growing up in districts which formerly sustained only a few sickly and miserable inhabitants.

Where the teachings of science have been followed, our race has triumphed over its enemies; where ignorance or apathy prevails, the toll is being paid in human lives. This is exemplified not only by malaria, but also by many other diseases which have been studied by scientific methods. During the Spanish-American war the American troops suffered great losses from yellow fever. Inspired by Ross's work, an investigation of the cause of the disease was undertaken, with the result that, like malaria, it was found to be transmitted by a mosquito, though a different kind from that which conveys malaria. Now note carefully one result of this discovery: it made possible the construction of the Panama Canal, which had been abandoned as hopeless. It was not a hostile army or political difficulties that obstructed the progress of the work, not mountain chain or desert waste, but an insect which raised a barrier of disease and death between endeavour and accomplishment.

For four centuries the narrow Isthmus of Panama was regarded as the white man's grave. "Yellow Jack," or yellow fever, prevented Spaniards, French, or English from founding colonies there, and it was abandoned to negroes and half-breeds, who were immune to the disease. When Ferdinand de Lesseps, the constructor of the Suez Canal, commenced to cut the canal through the Isthmus of Panama, the chief obstacles in his way were yellow and malarial fevers. His men died like flies. It has been stated that before the work was finally abandoned by the French, a human life had been sacrificed for every cubic yard of earth excavated. Out of every hundred men employed upon the work, at least eighteen were sacrificed to a disease which is now known to be preventable, and many more were rendered helpless.

When the United States took over the control of the canal in 1904, the Government set to work to exterminate the mosquitoes responsible for the transmission of yellow fever and malaria. An army of sanitary officers was employed in a vigorous fight against the death-dealing mosquito, with the result that yellow fever has been practically stamped out. There has been not a single death from yellow fever on the Isthmus of Panama since 1905, when the canal zone came under the complete control of the United States. By the destruction of a little grey gnat, a great engineering enterprise has been made possible of realisation.

Wherever steady war has been waged upon the mosquito, yellow fever and malaria have practically

disappeared. Formerly, yellow fever was the constant scourge of the West Indian Islands. One writer says: "The churchyards of Barbados and the other islands are full of the bones of the victims; and it is said of the slopes of the Morne, in St. Lucia, that there is not a square yard without the remains of a soldier under it, more being there from the results of yellow fever than from the bullets of the enemy." Now what do we find? The scourge which terrified the inhabitants of the West Indies every year in the old days has entirely vanished as the result of establishing regulations dealing with the breeding-places of mosquitoes. Action founded upon the word of science has converted into health resorts districts in which formerly a European could scarcely hope to survive.

Malaria and yellow fever have thus been formidable barriers to colonisation; and to have discovered their cause and their remedy is of the highest importance to the human race. Let me give one more instance of a similar kind. In certain districts of Central and Southern Africa thousands of cattle and animals die yearly of what is known as fly disease. This disease is carried from a sick to a healthy animal by the bite of a tsetse-fly—an insect only slightly larger than an ordinary house-fly. Domestic animals which enter fly-districts are seized in the course of a few days with fever and wasting, and they almost invariably die. Books of African travel are full of records of horses, teams of oxen, and herds of native cattle having been destroyed by the tsetse-fly disease; and on one occasion a native army, proceeding to the attack of an enemy, was effectually routed by having incautiously crossed fly-country.

Scientific investigations have shown that sleeping-sickness, which has destroyed millions of human beings in Central Africa, is probably spread by the bite of a tsetse-fly closely related to that which causes the fly-disease in cattle. Though the suffering caused by sleeping-sickness has been known for many years, it was not until toward the end of the nineteenth century that a systematic study of its cause was undertaken. It was soon found that the tsetse-fly does not possess a venom of its own, but is the carrier of poison matter. When the fly bites a sick person or animal, it sucks up some of the parasites of the disease. These multiply and persist within the body of the insect, and may be transmitted to every person on whom it feeds during several weeks, and perhaps months.

Here again, then, we have a particular insect as the agent for the spread of a particular disease. A few years ago people who devoted attention to the study of insects were considered to be concerning themselves with subjects far removed from the ordinary affairs of life: they might be tolerated, but were not to be encouraged. But now that biting flies have been shown to be responsible for the transmission of a number of terrible diseases, knowledge which was considered quite useless has proved to be of the greatest importance. There could not be a better illustration of

the ultimate value of faithful scientific work. Take this lesson to heart: whatever is worth doing is worth doing well. Every addition to knowledge is a stepping-stone by which the human race can pass to new regions of discovery. Science asks not for words, but work; for the patient study of the things before us rather than for dreams and vague speculations. Listen to the trumpet-call of Prof. Ronald Ross, whose labours for many years "to search out the secrets of nature by the way of experiment" have made life happier and surer in many parts of the world:

We must not accept any speculations merely because they now appear pleasant, flattering, or ennobling to us. We must be content to creep upwards step by step, planting each foot on the firmest finding of the moment, using the compass and such other instruments as we have, observing without either despair or contempt the clouds and precipices above and beneath us. Especially our duty at present is to better our present foothold; to investigate; to comprehend the forces of nature; to set our State rationally in order; to stamp down disease in body, mind, and government; to lighten the monstrous misery of our fellows, not by windy dogmas, but by calm science.

### A ROOM FOR THE TEACHING OF GEOGRAPHY.<sup>1</sup>

By J. FAIRGRIEVE, M.A.

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WE should have a special room set apart for the teaching of geography, and it should be used only for the teaching of geography. We have had a good deal of general discussion on geography rooms, and accounts of such rooms, but what is necessary now is an attempt to find what the conditions are and what is really the problem which has to be solved.

Two sets of facts require to be taken into account in planning a geography room—general and local. On one hand we have to consider the facts which make a special room necessary, and those which make certain fittings necessary; and we must also consider the conditions which control the arrangement of those fittings. We have to answer such general questions as "What size must the geography room be?" "What position in the school building should it occupy?" "What aspect should it have?" "What apparatus should be provided?" "What should be the lighting arrangements?" "Should there be desks?" "What size should the desks or benches be?" "What should be the arrangement of those benches?" On the other hand, local facts determine whether the ideal condition can be realised in a particular case. It is with the general controls that we shall most largely deal.

That we may come to any valid conclusions, it is necessary that we should know precisely what the problems are. We should know what we want and what are the conditions which make it possible or impossible to let us have what we want. At

<sup>1</sup> From a paper read at the London County Council Conference on January 6th, 1911.

the risk of being tedious, we shall begin at the beginning and state shortly that while the main aim of geography teaching is to give an outlook on space, and the method of geography teaching is partly what—for want of a better word—may be called theoretical, yet the theoretical is, or should be, based so far as possible on practical work.

It follows that the room set apart for geography teaching requires to be both a class-room and what in natural science subjects would be called a laboratory. It is, indeed, advisable that as little distinction as possible should be made, because a distinction suggests that there are two kinds of geography, and there are not.

The practical work is of various kinds. If one considers surveying, contouring, and the rest as part of geography rather than of geometry—though I rather think they belong to the latter in a properly correlated school course—there is still the impossibility of doing any of this outdoor work in the class-room, and the most that is required in the special room is cupboard and locker space for storing the necessary instruments.

The practical work indoors may be said to be of five chief kinds, which rather overlap:

(i) Drawing and constructing maps, plans, and diagrams from materials supplied; (ii) modelling; (iii) consulting large scale maps, plans, and charts; (iv) observing heavenly bodies, mainly the sun; (v) observing specimens, mainly geological and botanical.

It will depend on whether the school course includes physics, chemistry, botany, and the rest whether or not there should be some definite experimental work of various kinds. In a school where botany is not a subject of the curriculum, the geography course must almost of necessity include some practical work dealing with the importance of water on plant growth. It is almost inconceivable that any school which is sufficiently up-to-date to possess a geography room should be without a physics laboratory, but if by any remote chance physics is not part of the school course, there must be some experimental work on those branches of physics necessary to the understanding of the basal geographical facts. Provision must be made for carrying on all this work.

There will also be required for class-work in which the class is acting as a whole: (i) text-books; (ii) large wall maps; (iii) blackboard; (iv) models of solar system; (v) large globes.

Class-work will include the consideration of the actual appearances of typical land forms, vegetation, and conditions of human life. This is, of course, best done by the *real* practical work of travel. It has to be done, however, in the class-room, and is the basal work of the real geography. All the rest is either subservient to this, or an amplification of it, or deduced from it, and is of value just in so far as the conceptions of actual appearances of things are correctly obtained. If it is possible to see from the class-room physical units, such as hills, valleys, slopes, &c., so much the better; but such a view does not help us in our conceptions of world geography, while lantern

work forms the most efficient substitute for impossible travel, and the lantern is also most useful in exhibiting maps and diagrams not otherwise to be seen and talked of by the whole class at once: we must therefore include (vi) lantern and screen.

In addition to the pictures shown on the screen it will be advisable to have a few large pictures permanently hung on the walls for class reference, and a larger number of smaller ones with descriptions appended for individual use.

There are a number of other fittings and appliances which might be mentioned, but instead of compiling a list of them we shall take one as an example of how our theoretical views on geography teaching control such a practical issue as the fittings of a geography room. Among the fittings mentioned above as necessary is a blackboard. Some geography teachers would add "also a squared blackboard"; but whether you *require* a squared blackboard or not depends on the way in which geography is related to other subjects.

Two reasonable courses are open:

(i) You may introduce the idea of graphs to the pupils by giving geographical examples, and your colleagues will use your work in their mathematical courses.

(ii) Your colleagues may themselves introduce graphical work to the pupils—preferably with geographical material—and you will build on the foundation thus laid.

In the former case a squared blackboard will be required; in the latter case it is not by any means necessary.

This is in itself a small matter, but it raises the large question of the correlation of the geography in the school with the whole of the other subjects. I have already said that I think that surveying, contouring, &c., are properly part of the school geometry course rather than of the geography course. In a carefully correlated curriculum much more could be done in the physics, chemistry, botany, history, and even English classes, without any further expenditure of time, and the geography could bring many loose ends together and weld them into a coherent whole. Personally, I am inclined to induce other folk to do as much work as possible, and at once leave me more time for pure geography and free the room of as many things as possible which are not absolutely necessary.

Let us consider what the size of the room must be and what must be the arrangement of the fittings. (i) For individual work it is immaterial whether the pupils "face" one way or in different ways, but for class-work it is imperative that they should face in the same direction. The room is to be both a class-room and a laboratory, so it must be conveniently arranged for either kind of work; thus it may be taken as necessary that the pupils' working desks or tables should all face the same way.

(ii) For the exhibition of large wall maps, the most convenient arrangement is to have a large



blank wall not cut up by windows, which the class should face. On this wall must be a blackboard. Globes—blackboard surfaced and physically coloured—must also be arranged at this side of the class-room.

(iii) The lantern sheet must be in a position to be seen by the class: the lantern must obviously be at right angles to the sheet. This is all easily arranged when there is a lecturer to give a lecture and an operator to work the lantern. Then the screen is directly in front of the class, and the lantern is towards the back of the room or hall. However, when there is no lecturer, but a teacher takes his place, and when the teacher is the operator, this arrangement is open to several objections. The lantern should be on the administrative desk. By placing the administrative desk at the side of the class and arranging the screen diagonally, the teacher has a fuller control of the class; he can "give a lesson" on a particular slide, while the class can see both him and the picture without "turning round" to any inconvenient extent. The lantern will be placed at the right-hand side of the teacher, as one naturally works the lantern with one's right hand.

(iv) For observations of the sun there must be a clear view from one window to S.E., S., and S.W., and there must be a carefully levelled flat space on which shadows cast at various times of the day may be accurately measured, and on which sundials, &c., may stand. This space might be outside the window, but it will be much more accessible if inside, and permanent records would run much less chance of erasure. The reason for having this window to S.E., S., and S.W. lies, of course, in the fact that during school hours the sun is to be seen in those directions. These observations should be made in the class-room, *not* in the playground, for the sake not only of quantitative measurements, such as those to show the difference in angular height of the sun in summer compared with that in winter, but also of some fairly accurate quantitative measurements, such as those necessary to obtain longitude and the north and south line.

(v) It will be necessary to have a great amount of cupboard space for storing maps, apparatus, specimens, survey instruments, &c. Cases to show small maps without these becoming dusty are necessary, as well as exhibition cases for experiments that take time. A bookcase will be required for reference books and data from which work is done. Wall space is required for pictures, large and small.

(vi) A sink and a slate slab for use when taking casts, and for such observational work as requires water, should also be handy.

(vii) For most of the practical work it is necessary that each pupil should have a desk space about 30 inches by 24 inches: this will take a sheet of the one-inch Ordnance map and have a little space over. It will also take most sheets of the Bartholomew "half inch."

(viii) The position of the room in the school buildings is determined by the necessity for a win-

dow open to S.E.—S.—S.W. This condition almost necessarily implies that the geography room should be placed on the south of the school buildings, and as high as possible. Few schools are oriented exactly so that the walls run exactly east and west or north and south, so that there will be one corner, the south corner, where this window may be placed.

(ix) The size of the room will be determined partly by the number of pupils it is intended to accommodate at a time and partly by the amount of space necessary for the various pieces of apparatus. With all the claims made for space for working desks, for storage, and exhibition purposes, this room, really to serve its purpose, must be large. It must have plenty of floor space and height, but we should consider most carefully so that not a foot of space be wasted, especially as it is obvious that for class-work the class should be as compact as possible.

For example, we may assume that the class numbers thirty. To arrange these symmetrically there may be three rows with ten pupils in each row, five rows of six pupils, six rows of five pupils, or ten rows of three pupils. If the pupils will sometimes work in pairs we cannot have an odd number of pupils in a row, and the two latter arrangements are eliminated. The choice lies between three rows of ten and five rows of six. If we have three rows of ten the room tends to become oblong. If we have five rows of six, the room will be more nearly square. Now, it has been pointed out that a large blank wall in front of the class is one of the chief desiderata; this can best be obtained by arranging the pupils in three rows with ten pupils in each row.

There is now the question whether we should have single long benches to accommodate ten pupils at each, or whether each set of two pupils should be divided from the rest. In the first case, the length of the benches will be ten times 30 inches, or 25 feet. If a space of 3 feet is allowed between the rows for seats and passage way, we arrive at the fact that the seating space required is 25 feet by 15 feet. If a two-foot gangway separates each set of two pupils, the space required is 33 feet by 15 feet. Now the front bench cannot be nearer the blank wall than 7 feet, and this distance might be increased with advantage. The master's platform, with the administrative desk, will be about 5 feet 6 inches wide, and the class cannot be nearer this than 4 feet. We must remember that we require a large window open to S.E.—S.—S.W. at the south corner of the room. The master's desks will be on the north-west wall. The table for shadow observation, &c., requires to be large, and there must be a space for a class to stand round. All this implies that a space of 6 or 7 feet must be allowed between the class part of the room and the other walls not yet accounted for. Taking account of the various dimensions already mentioned, we come to the conclusion that the smallest room which is adequate requires to be at least 41 feet by 27 feet. If the dual benches

are used this must be increased to 49 feet by 27 feet.

It seems scarcely worth while pursuing the general inquiry further at this time. Local conditions become of overwhelming importance. With apparently very few simple data the problem has become very complicated. It is almost impossible in any school to have all that goes to make an ideal room, and all that one can do is to obtain the best possible in the circumstances.

There are a number of points of detail which are of importance, but do not seem to me seriously to interfere with the general arrangements—the size of the screen, methods of hanging wall maps, methods of storing maps, details of benches, size of globes to be used, methods of exhibition of the same, exhibition cases for pictures, a dark room for photographic purposes. All these topics require discussion, but here, perhaps, the mention of their importance may be sufficient.

I have endeavoured to point out the main facts to be kept in mind in planning a room. So far as I know, we have for the few geography rooms that do exist, either ordinary class-rooms which have been "made to do," or rooms which have been built without any very real consideration of what a geography room is, or wherein it differs from other rooms. Of course good work is being done in these rooms, but that is no reason why with the experience thus gained we should not have rooms that are definitely adapted for their purpose.

In the final resort this is a question for governing bodies and the powers that be, but we teachers must first know clearly what we do want before we approach these powers.

### PRELIMINARY INVESTIGATIONS ON MEMORY.<sup>1</sup>

By E. O. LEWIS, M.A., D.Sc.

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IT may be desirable to state briefly the method of reasoning which led to the present investigation, especially as the results obtained were quite the opposite of those anticipated. This investigation was prompted by a secret belief in the existence of a certain form of "mental compensation." Recent research work has brought forward evidence of the improvement of memory as school age increases. Thus Meumann found that in learning a list of words the adult requires much less time and fewer repetitions than the child.<sup>2</sup> Again, Ebbinghaus discovered that from eighteen to twenty years of age about one and a half times as many syllables or words can be learnt as from eight to ten years.<sup>3</sup>

But this evidence suggested to some of us that the superiority of adult memory exists only when

sensible material is learnt, but that the young child might show to advantage with nonsense material. This presentiment of the superiority of the young child as regards mechanical or brute memory receives no little justification when one thinks how much the pupils of the lower classes in our schools have to learn which is not thoroughly understood by them. Some educationists justify this by stating that mechanical learning is easy to young children, which is some compensation for their lack of intelligent comprehension. This investigation set out to answer the question, Is it true that such a "providential" compensation exists?

METHOD OF EXPERIMENT.—Three series of material were prepared:

*Series I.* consisted of fifteen familiar monosyllabic sense words; e.g., cut, new, ring, &c.

*Series II.* consisted of fifteen nonsense syllables; e.g., ruc, vag, &c.

*Series III.* consisted of fifteen letters and numbers; e.g., l, t, 14, q, &c.

Each of these words, letters, or numbers was printed on a separate card. Each series was shown to an individual three times and then he was required to reproduce on paper as many of the words as he could remember. The words were exposed at a slow uniform rate, and the class teacher with whose pronunciation the pupils were familiar pronounced the words as they were exposed. The three series were shown in different orders to various individuals and groups, i.e., in some cases the series of sense words was shown first, whilst in other cases the series of letters or nonsense syllables came first. On the following day the pupils, without any previous warning, reproduced what they could remember of each series separately. There were no cases of confusion of the different series, and there was practically no evidence that the pupils in the meantime had discussed amongst themselves the words memorised. After reproducing as much as they remembered the pupils were shown the series once again, and then reproduced on a different paper what they could remember. A certain number of marks was given for each word or letter reproduced correctly, and partial marks were given for an approximately correct reproduction. No attention was paid in allotting these marks to the order in which the words or letters were reproduced.

The pupils who took part in these tests all belonged to elementary schools. Twelve pupils from each of three classes were taken, viz., from Standards II., IV., and VI., the average ages being eight, ten, and twelve years respectively.

The headmaster and class teacher chose from each class those they regarded as four of the most intelligent pupils, four of moderate intelligence, and four of sub-normal intelligence. Three pupils from each class were tested individually; whereas "mass experiments" were conducted with each remaining group of nine pupils.

RESULTS.—The numbers in the following tables indicate the percentage of the material reproduced on an average by each pupil.  $S_1$ ,  $S_2$ ,  $S_3$  refer to

<sup>1</sup> From a paper read at the London County Council Conference of Teachers on January 3th, 1911.

<sup>2</sup> Meumann, "Exper. Psych.", i., p. 193.

<sup>3</sup> Ebbinghaus, "Grundzüge," i., p. 622.

Series I., II., and III. respectively. The results obtained in the three schools are given separately.

Results classified according to the standards:

TABLE I.

|           |         | Aver. per cent.<br>learnt on<br>1st day |                |                | Aver. per cent.<br>remembered on<br>2nd day |                |                | Aver. per cent.<br>reproduced<br>after repeating<br>the series once<br>on 2nd day |                |                |
|-----------|---------|---|----------------|----------------|---|----------------|----------------|---|----------------|----------------|
|           |         | S <sub>1</sub>                          | S <sub>2</sub> | S <sub>3</sub> | S <sub>1</sub>                              | S <sub>2</sub> | S <sub>3</sub> | S <sub>1</sub>  | S <sub>2</sub> | S <sub>3</sub> |
| School A. | St. II. | 63                                      | 27             | 64             | 22  | 10             | 33             | 63  | 37             | 62             |
|           | St. IV. | 61                                      | 38             | 51             | 24  | 16             | 36             | 60  | 47             | 65             |
|           | St. VI. | 63                                      | 45             | 56             | 25  | 26             | 35             | 66  | 55             | 64             |
| School B. | St. II. | 54                                      | 25             | 58             | 23  | 11             | 21             | 35  | 32             | 50             |
|           | St. IV. | 55                                      | 31             | 64             | 32  | 15             | 27             | 69  | 47             | 57             |
|           | St. VI. | 59                                      | 46             | 61             | 30  | 28             | 28             | 77  | 65             | 66             |
| School C. | St. II. | 62                                      | 30             | 63             | 31  | 14             | 34             | 58  | 27             | 67             |
|           | St. IV. | 64                                      | 42             | 66             | 36  | 26             | 30             | 67  | 45             | 68             |
|           | St. VI. | 69                                      | 47             | 61             | 39  | 33             | 31             | 71  | 52             | 70             |

Results classified according to the degree of intelligence:

TABLE II.

|           | Degree<br>of intelli-<br>gence | Aver. per cent.<br>learnt on<br>1st day |                |                | Aver. per cent.<br>remembered on<br>2nd day |                |                | Aver. per cent.<br>reproduced<br>after repeat-<br>ing the series<br>once |                |                |
|-----------|--------------------------------|---|----------------|----------------|---|----------------|----------------|--|----------------|----------------|
|           |                                | S <sub>1</sub>                          | S <sub>2</sub> | S <sub>3</sub> | S <sub>1</sub>                              | S <sub>2</sub> | S <sub>3</sub> | S <sub>1</sub>   | S <sub>2</sub> | S <sub>3</sub> |
| School A. | Least                          | 57                                      | 31             | 60             | 23  | 12             | 31             | 61   | 41             | 60             |
|           | Modér.                         | 62                                      | 38             | 64             | 21  | 17             | 34             | 62   | 48             | 63             |
|           | Most                           | 69                                      | 48             | 55             | 26  | 24             | 39             | 67   | 53             | 60             |
| School B. | Least                          | 51                                      | 21             | 62             | 24  | 11             | 24             | 71   | 34             | 58             |
|           | Modér.                         | 54                                      | 37             | 59             | 26  | 16             | 26             | 61   | 48             | 64             |
|           | Most                           | 63                                      | 44             | 64             | 35  | 26             | 25             | 72   | 62             | 59             |
| School C. | Least                          | 57                                      | 23             | 65             | 29  | 15             | 27             | 62   | 25             | 69             |
|           | Modér.                         | 63                                      | 41             | 68             | 35  | 24             | 35             | 69   | 42             | 63             |
|           | Most                           | 74                                      | 54             | 58             | 42  | 35             | 33             | 66   | 56             | 72             |

One significant feature of the data obtained in each of the schools is that whereas the average marks obtained by the pupils of Standards II., IV., and VI. were very similar when learning the sense words (Series I.), the average marks increased considerably with the age of the pupils when learning the nonsense series (Series II.). A similar feature is indicated by the results given in Table II., namely, the most intelligent pupils show to a greater advantage as compared with those of lower intelligence, in the learning of the nonsense than the sense series. This feature is true of both immediate and prolonged memory. Thus these results seem to dispose of the belief in the existence of the "mental compensation" which initiated this investigation. The younger the pupil the more important it becomes to explain thoroughly the matter to be memorised.

If mechanical memorising is to be done at all, it can be more advantageously done in the upper classes of a school. These results demonstrate that there is but little difference in the memorising power of children of various ages provided the material is equally intelligible to them all. They also seem to indicate that there still remains in Prof. James's view some element of truth (although one is flowing against the stream of present-day opinion by supporting such a view). The view referred to is that whatever constitutes the improvement of memory does not involve any improvement in native retentiveness.

The question is naturally asked, "What then constitutes the superiority of the older pupils

when memorising nonsense material?" The results obtained by learning Series III., consisting of letters and numbers, suggest one factor. These results resemble to a certain extent those obtained with series of sense material—i.e., the amount learnt by the younger pupils is nearly as great as that learnt by older pupils.

This feature, together with the observations made by several of the pupils, tested individually, with regard to their method of learning words, signifies that the superiority of the older pupils as well as the more intelligent pupils in learning nonsense material consists in a more ready and systematic perceptual analysis and synthesis of the letters of the unfamiliar words. It was evident that the older and more intelligent pupils set about apprehending the unfamiliar or nonsense words in a very different manner from that adopted by the younger and less intelligent pupils. The younger and less intelligent pupils set about to spell the words letter by letter, and then endeavoured to synthesise these letters into a unitary whole. They proceeded from the part to the whole. The older and more intelligent pupils, on the other hand, endeavoured to apprehend the whole word at a glance and then analysed it into its various letters. They proceeded from the whole to the parts. I need hardly say that both younger and older pupils apprehended the sense words according to the latter method. The word as a whole was recognised at the first glance. Our results give further evidence that the apprehension of a familiar word of four or more letters is practically as simple a mental act as the apprehension of a single letter or number, because as many of the sense words of Series I. were remembered as of the letters and numbers of Series II.

The results obtained also seem to show that the learning of nonsense syllables involves more complex processes than has hitherto been supposed. Such material is not a test of mechanical memory as Ebbinghaus and others have supposed; neither is it to be regarded as presenting uniform difficulty to all persons. Children as compared with adults are at a distinct disadvantage when tested with nonsense material. In fact these results (Table II.) seem to suggest that the learning of nonsense material is more of a test of a certain form of intelligence than of "pure" or mechanical memory. Learning a series of nonsense material involves considerable concentration of attention and systematic apprehension.

The data obtained in this investigation enable us to test the truth of another common belief in "mental compensation," generally expressed by saying that "those who learn quickly also forget quickly, whilst those who learn slowly retain well." Experimental investigation has emphasised the distinction between immediate and prolonged memory, or the power of learning and the power of remembering.

The truth or falsity of this popular belief can be tested by finding the "coefficient of correlation" between the data obtained by immediate and prolonged memory. Two mental traits are said to be

highly correlated when persons proficient in one are proficient in the other, whilst lack of proficiency in one is accompanied by lack of proficiency in the other. In order to find the "coefficient of correlation" in the present case, two lists are made in which the pupils are arranged in order of merit according to the amount of material reproduced on the first and second days. If the pupils have the same relative positions on the two lists, then the "coefficient of correlation" is high. Should the two lists be identical there would be the highest possible coefficient of correlation, which is generally indicated by  $+1$ . The greater the divergence between the two lists, the less is the coefficient of correlation. Should one list differ considerably from the other the coefficient of correlation becomes negative, and approximates the value  $-1$ .

The coefficients of correlation were calculated by means of Spearman's "Footrule Method."<sup>1</sup> The groups of thirty-six pupils in each of the three schools were dealt with separately. The coefficients of correlation between the immediate and prolonged memory for the sense material were 0.64, 0.81, and 0.76;<sup>2</sup> whilst those for the nonsense material were 0.78, 0.75, and 0.80<sup>3</sup> respectively. These results indicate clearly that the pupils who were able to learn most on the first day were also those who reproduced most on the second day, and thus there is no scientific basis for the generalisation, "Quickly learnt, quickly forgotten."

The coefficients of correlation between the amount of sense and nonsense material learnt on the first day were also determined. These were found to be 0.43, 0.36, 0.51,<sup>4</sup> and they indicate that generally those who are able to learn familiar words most readily also learn unfamiliar words most readily.

It will be remembered that on the second day the pupils were asked to reproduce immediately what they remembered of the material they had learnt on the previous day, and then they were shown the list of words once only and again asked to reproduce what they remembered. On an average 29 per cent. of the sense material was reproduced in the first instance, whereas 65 per cent. was reproduced after showing the list once. Similar results were obtained with Series II. and III. These results should be compared with those obtained with a class of pupils who learnt a similar list of sense material, but in this case the pupils were not required on the second day to reproduce the matter before the list was shown. In this case after showing the list once, only 41 per cent. of the material was reproduced. These results show the immense advantage of getting the pupils to make an independent effort to reproduce the matter before showing the list the second time. This method excites an attitude of mental alertness which is of the greatest importance in all memory work.

The mistakes in the reproduction of the various

words indicate some interesting points. As might be expected, the majority of mistakes were made in the reproduction of the nonsense list. The tendency to repeat mistakes once made was very manifest. Thus, in School A, there were forty-two mistakes in the reproduction of the nonsense list at the first attempt on the second day; and, after showing the list once, thirty-six of these mistakes were repeated in the next reproduction. There were also several cases in which boys in the former reproduction of the sense list wrote words not included in the list shown to them, and these words were still found in the latter reproduction. These features show how important it is to direct special attention to mistakes which have been once made in order that they might be eliminated on future occasions.

By far the greater number of these mistakes was with consonants and not vowels, the proportion being greater than the relative number of consonants and vowels in the alphabet. In several cases dentals were confused—e.g., *d* for *t*; and so were labials—e.g., *p* for *b*; which suggests that in these cases the kinæsthetic and auditory imagery played an important part. There was also plentiful evidence that the pupils relied upon visual imagery. Thus, for example, the right letters of a word were often reproduced in the wrong order—e.g., *nev* for *ven*.

SUMMARY.—In summarising the results of this investigation greatest emphasis must be laid upon the feature which indicates the importance that should be attached to the clear and systematic apprehension of the form and meaning of matter which has to be learnt. Much the greater part of the work of memorising is done by explaining carefully to the pupils the matter to be learnt and by cultivating habits of intelligent analysis and synthesis of this matter. Efficiency in memory work depends mostly upon the systematic apprehension and the rational comprehension of the significance of the matter. It is this aspect of memory which is capable of most development, and efforts exerted by teachers in this direction will certainly produce beneficial results. Much more time should be spent, in the lower classes especially, in the presentation of the matter and less time in mechanical repetition. Mechanical repetition certainly has a legitimate application in school work, but its subsidiary importance in memory work has been recently demonstrated in a convincing manner by McGamble in the article on "The Reconstruction Method of Learning."<sup>1</sup>

Whatever value the results of the present investigation have lies not in their novelty, but rather in that they present in a more or less striking manner facts with which most teachers are already conversant. The chief difference between the good and the indifferent teacher is often not a difference of knowledge of theory, but that the former has realised the significance of this knowledge so thoroughly as to be continually applying it in practice, whereas the latter is satisfied with the application of a few empirical and

<sup>1</sup> "Brit. Journ. of Psychol.," 1906, ii. 89.

<sup>2</sup> Probable errors were 0.066, 0.039, 0.047 respectively.

<sup>3</sup> Probable errors were 0.038, 0.051, 0.044 respectively.

<sup>4</sup> Probable errors were 0.029, 0.036, 0.035 respectively.

<sup>1</sup> "Psych. Review, Monogr. Suppl., 1910."

unscientific maxims regarding the art of teaching. The manner in which teachers cling to obsolete methods, although they know them to be contrary to accepted psychological principles reminds one of the eminent politician who, on being told that both parties had accepted the principle of a certain Bill, remarked, "Well, if that be the case, the Bill is as good as dead." If the experimental study of child-psychology does nothing more at first than present the facts we already know regarding the child-mind in such a manner as to impress the teacher with their real significance it will do a great deal to further the progress of educational theory and practice.

#### PERSONAL PARAGRAPHS.

A REMARKABLE continuity of academic life and interests was the feature of the career of the Rev. Edward Tindal Turner, senior Fellow of Brasenose, Oxford, who died on February 1st, at the age of eighty-eight. He was educated at Oswestry School, took his degree from Trinity College, Oxford, with a first class in Lit. Hum., and returned to Brasenose, the college at which he had matriculated, as a Fellow in 1845. He held that office without a break for some sixty-five years, and his unbroken membership of the Hebdomadal Council extended over thirty-six years. It is said that he never missed a term's residence during his whole Oxford life. At Brasenose he held the offices of lecturer, tutor, senior bursar, and vice-principal (1870-81); in the University he served as senior proctor in 1859, and as registrar from 1870 to 1897. As vice-principal tradition says that he exercised a Draconian discipline, not unmingled with geniality and a sense of humour, and that the undergraduates in their attempts to score generally took second place. Though widely read, he wrote nothing. He was an excellent after-dinner speaker, and a power—on the side of sturdy Toryism—in academic politics.

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AN almost equally remarkable case of long service, in elementary-school work, is that of Mr. R. S. Downs, who has been headmaster of the National Schools, High Wycombe, for more than forty years. He is about to retire from his long service. Five of his old scholars are now in Holy Orders. He was, what all schoolmasters should be, interested in local archæology.

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THE REV. JOHN BOND LEE, who died recently, was educated at Crediton School, and went to Oxford as a scholar of Exeter College. He took second classes in classical "Mods." and Lit. Hum. (1860 and 1862), and was an assistant-master at Bedford School for ten years, from 1865 to 1875. For more than thirty years, from 1875, he was headmaster of Queen Elizabeth's Grammar School, Chipping Barnet. He was the author of a book, "Middle Class Education and the Endowed Schools Act," published by Messrs. Rivingtons in 1885.

A NEW principal of Ely Theological College has been appointed. Dr. H. L. Goudge, Prebendary of Wells and principal of Wells Theological College, succeeds to this principalship, as well as to the canonry in Ely Cathedral, vacated by the death of Canon Emery. Prebendary Randolph, the present principal, will shortly resign.

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MR. WILLIAM BRAGINTON, who has been headmaster of the Strand School, King's College, since its foundation in 1893, retired from the school at Christmas. He remains, however, head of the Civil Service Department of King's College. A movement is on foot to present Mr. Braginton with a suitable testimonial, and Mr. C. H. Warren, of the Strand School, is honorary secretary and treasurer of the fund. Mr. Braginton, we understand, has been very successful with pupils who have been candidates for Civil Service and other competitive examinations; and his success has been founded, not on cramming, but on thorough work and general efficiency. This kind of example is sorely needed, as competitive examinations tend to increase; and probably a statement of his methods, at this juncture, would be widely read with interest. Unfortunately, the best-laid schemes of examiners leave many loopholes for cramming, and some of the papers set in several of the best-known examinations seem actually to demand it. With Prof. Sadler and Mr. Hartog and many others asking for a Royal Commission to investigate the problem of how best to select efficient men for the public services, it seems likely our examination methods will before long receive a rude shock. Meanwhile there is a short chapter in A. Fouillée's "Education from a National Standpoint" that is worth reading in this connection. It is chapter vii. of Book V., dealing with the *Abiturientenexamen*. A few sentences may be quoted: "One criterion may be employed to distinguish between the fundamental and the accessory in examinations. Everything that can be learned from a manual is accessory; everything that cannot is fundamental. . . . You cannot learn from a manual how to write your own tongue or Latin, or to translate. . . . Translation, essays, composition in Latin and the mother tongue are the real intellectual dynamometer." It seems to have been rashly assumed that, because English literature should, beyond a doubt, be taught in schools, therefore it should be made a subject for leaving examinations.

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BUT to return to Mr. Braginton. He was formerly a Civil Servant. He began coaching for Civil Service examinations in connection with the City of London College, and continued this work with King's College. The day classes which he started in 1893 developed into the Strand School. He led a strenuous life, in which work was always first. In seventeen years his school grew to more than 500 boys, half of whom are above sixteen years of age. His pupils have scored more passes in the London Matriculation examination

than those of any other school, and this, I am informed, without special preparation.

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MR. BRAGINTON'S successor will be Mr. Ralph Bushill Henderson, who was educated at Bristol School, and New College, Oxford, and took first classes in mathematical "Mods." and Finals in 1899 and 1901 respectively. He has had experience at King Edward's School, Birmingham, and has been an assistant-master at Rugby since 1902.

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CANON JAMES JOHNSON, who recently died at the age of seventy, was educated at the Macclesfield Grammar School and at St. John's College, Cambridge. After graduating in 1862, he spent seven years as assistant-master at his old school, and was then appointed, in 1869, chaplain to the Home and Colonial Training College for Teachers, London. He afterwards held, in succession, several benefices, and was made Honorary Canon of Manchester Cathedral by Bishop Moorhouse.

ONLOOKER.

## EXAMINATIONS IN THEIR BEARING ON NATIONAL EFFICIENCY.<sup>1</sup>

By P. J. HARTOG, M.A., B.Sc.

THE public demands that persons on whose services it relies, but for whose failures it cannot be compensated, as by a business man who fails to fulfil his contract—that these should produce some certificate of competency based on an examination, and often on a series of examinations beginning in childhood, and prolonged into early manhood and beyond. Teachers, lawyers, doctors, dentists, engineers, architects, and the civil, naval and military servants of the Crown, on whom the organisation and defence of the Empire rests, must pass examination tests, and in many cases their whole career is determined by such tests.

It is, therefore, a matter of national and Imperial concern that this method of test should be wise in its design, certain and not capricious in its working, and, above all, that in its stamping operations it should not damage the human material on which it sets a hall-mark.

Can it be said of English examinations at the present day that they fulfil these requirements? Are they wisely designed? Do they work with certainty and accuracy? Do they tend, on the whole, to improve the boys and girls, the men and women, whose education, whose lives and careers they so largely control? Are they really serving the national and Imperial purposes they are supposed to serve, in the best possible way? If these questions were put to a Referendum, I have little doubt of the reply.

While it may be conceded that there are many judicious examiners, and examining bodies of unquestioned wisdom, the body educational as a whole is suffering from the aches and pains of examination. Those who say, "Get rid of examinations altogether," offer us nothing in their place; they do not realise the situation. I spoke just now as if examinations affected us only from without; but have not examinations become, as it were, an artificial nervous system of our education, of which every movement is controlled either by their stimulus or by their power of inhibition, so that extirpation is an impossible task? If we

cannot remove this tyrant that governs education from within, cannot we either reduce its powers or force it into beneficence? Quixotic as it may seem, I believe the task not to be impossible.

Remembering that the original examination was a test of technical efficiency, excellently suited to its purpose, we can see how examinations have taken on two and perhaps three, entirely new functions, and with far-reaching effects both on examinations and on education.

The first new function—the use of examinations to distinguish between candidates of different merit—was an early and almost inevitable development; and yet we can see every day how the competitive idea leads us to forget the distinction between the efficiency of an examination and its difficulty.

The second new function of examinations is a later development, and in some ways a characteristically, though not exclusively, English development—I mean their use to test not so much the efficiency of candidates as that of their schools. The examination, as thus used, was organised primarily as a technical test, good or bad, not of the taught, but of the teacher. But are not the real interests of the taught, which it was originally intended to serve, sometimes, or perhaps often, lost sight of in the process? Here, again, the difficulty of an examination is apt to be confused with its efficiency.

There is a third function of examinations, not easy to distinguish altogether from the original function of testing efficiency—I mean their function to test what is called "general culture."

Examinations are nowadays conducted with four distinct, primary objects:

- (1) To test the efficiency of a person for the practice of his technical calling or profession.
- (2) To arrange candidates in an order of merit.
- (3) To test the efficiency of schools.
- (4) To promote general culture, an object for which many persons regard them as totally unsuited.

Before we can estimate in detail the results of examinations, we must say something of their methods. Examination tests may be classified in two ways: first, according to what may be called their external character, under which heading we may divide them, as usual, into written examinations, oral examinations, and practical examinations; and, secondly, according to a character much less obvious, but more important. They may be divided into:

(1) Knowledge-tests (or memory-tests), which test the power of restating facts and arguments of a kind that may be learnt by rote—e.g., "Describe Joule's experiments on the mechanical equivalent of heat"; "Relate the chief events in the reign of Edward I."; "Write out the 47th proposition of Euclid"; "How is the preposition 'in' used in Latin?"

(2) What may be called capacity-tests, which test the power of doing something, of applying knowledge to some definite purpose; e.g., the power of making a  *précis*  of a written document, of writing a letter or a report on a particular subject with a particular object in view, of translating from or into a foreign language, or of conversing in that language, of solving a mathematical problem, of criticising a passage from a literary work, of writing an essay on an historical or literary subject with the aid of books in a library, of diagnosing the malady of a patient, of analysing a chemical mixture or compound; and (perhaps the highest form under the rubric) of making an original contribution to learning or science as the result of personal investigation or experiment.

<sup>1</sup> From a paper read before the Royal Society of Arts. Copies of the complete paper, together with a speech by the Earl of Cromer, price 6d., may be obtained from Messrs. Hugh Rees, Ltd., 119, Pall Mall, London, S.W.

The classification which I have here set down, hinted at by Mark Pattison, and no doubt by earlier writers, but perhaps first clearly enunciated in a remarkable but too little-known work by Latham on "The Action of Examinations," published in 1877, obviously does not correspond to a logical dichotomy. The capacity-test of the kind used in examinations does imply knowledge, though the knowledge-test does not imply capacity beyond that of memorising and an elementary (and at times doubtful) mastery of the mother tongue. It is sometimes said that the memory-tests set at examinations are too hard, that the knowledge, laboriously pumped into the brains of candidates under examination-pressure, escapes rapidly when that pressure has been released, and that if we were to apply the witty definition of education as what remains when we have forgotten what we have learnt, the result of examination-education is *nil*. It would not be wise to accept that conclusion without reserve. It is, at any rate, true that examiners do not by any means demand that candidates should know everything that they are asked; the ordinary examiner at a pass examination is content if the examinee can answer satisfactorily from one-third to one-half of the questions set. When these questions are memory-tests, the indulgence is surely justified in most cases, although there are perhaps ignorances of fact of a dangerous character to which this leniency should not apply.

In dealing with capacity-tests, the question of leniency and severity takes on another aspect. A boy who can only do right five addition sums out of ten cannot add. A person who reads a thermometer accurately five times and inaccurately five times cannot read a thermometer. A person who understands nine-tenths of the words in an easy passage in a foreign language, with or without the use of a dictionary, but is at sea in regard to the meaning as a whole, has not brought his knowledge of the language to a useful point. On the other hand, if a candidate can satisfy capacity-tests, if we are able to assert from the definite evidence of the examination room, by his obtaining not 30 or 50, but, say, 80 or 90 per cent. of the maximum marks assigned to such tests, that he can do this kind of problem in mathematics, that he can speak this foreign language so as to make himself understood on everyday topics, that he can analyse a leading article in a daily paper so as to present its gist fairly and clearly to a person who has not read it, we need not fear that these capacities will fade away a week or a fortnight after the examination. I firmly believe that examinations *can* tell us something definite about candidates. The question is, do they at the present moment? It is obvious that the answer will not be the same in regard to all examinations, that no general answer can be given to my question. But we shall understand its precise bearing if we deal a little more in detail with the question of numerical marks, adopted, not in all examinations, but in most pass examinations and in most competitive examinations.

The system is familiar to everyone. A certain number of marks is assigned to each question set, and the maximum obtainable for a paper is the sum of these marks. The number of marks allotted to each candidate is the sum of the marks assigned to his several answers to those questions; and the ordinary working hypothesis is that the value of the performance of the candidate is proportional to the total number of marks he obtains. Putting the thing in another way, we may say that the hypothesis amounts to this, that, if we arrange candidates in the order of their performance as determined by the aggregate of marks obtained, we shall be doing them no injustice, and this order is commonly called an order of

merit (though order of proficiency would perhaps be a more accurate expression).

The value of this hypothesis may be tested in two ways. We may examine the postulates on which it rests, and the results to which it leads. Take, first of all, the postulates. The hypothesis implies that we have some reasonable basis for determining the relative value of different questions, i.e., that a number of different examiners, regarded as equally competent, will attribute approximately the same relative values to the different questions; and it implies again that the same set of examiners will attribute approximately the same values to the answers to those questions given by a particular candidate. Now, although examinations are carried out on such a gigantic scale, we have very few published data to test the validity of these postulates. In a statistical investigation by Prof. Edgeworth, it appeared that there were considerable discrepancies in the marks assigned by different examiners to the answers of a set of candidates. If this is so, how can the same standard be maintained? The result is what we might expect in the case of examinations of which the object is indeterminate, for how can we estimate the value of anything unless we know what is its precise object? If a candidate is allowed to pass by obtaining from 30 to 50 per cent. of marks on memory-tests and capacity-tests mixed in variable proportions, what does a "pass" mean? What may we say that a man who just passes an examination can do? Is not the meaning of a "pass" in itself indeterminate? Does not the standard necessarily vary from candidate to candidate as well as from year to year?

The variations that we find in the percentages of passes in a particular subject from year to year, I think anyone acquainted with the inner working of our examination system will agree with me in saying, cannot be regarded as due to the carelessness of individual examiners, for, in the first place, examiners take a great deal of pains with their work, and, in the second place, carelessness may tell as much in favour of a particular candidate as against him. I do not think that it is at present possible without further scientific investigation on a considerable scale, to state what are the precise facts of the case, or the precise causes of these variations. They may be due to defects in our system of marking; they may be due to real variations in the quality of candidates, of which the causes are unknown and which it would be important to discover.

The assignment of marks in practical examinations is probably an easier matter than in written, for the reason that most practical examinations, though not all, are capacity-tests rather than memory-tests, and it is easier to say whether a candidate can or cannot do what is required of him.

Of all kinds of examinations, that which may be the most valuable, and that which presents the most difficulties, is the *viva voce* examination. Largely used abroad, it is used comparatively little in this country, because our boys and girls are not taught to speak and to think at the same time at the age when children speak confidently and easily, and hence in the presence of the examiner the candidate is often paralysed by nervousness, for which it is difficult, or impossible, to make the proper allowance. He may be reduced to silence or nonsense. A candidate in *Materia Medica* in a northern university, who was unable to distinguish the taste or the smell of the sample of cod liver oil that he held in his hand, on being asked, "Where does cod liver oil come from?" replied, "The whale."

We have in the *viva voce* examination a sense of reality that is apt to become somewhat thin in the written



examination. If an examiner knows that he has to decide, face to face with a candidate, not whether he attains a particular standard in a particular subject, but whether he has the knowledge and capacity to do a particular job or pursue a particular career, he will feel much more able to come to a decision than after he has merely seen the candidate's written papers. Would any sensible person, in business, in war, or in administration, free to choose his own subordinates in carrying out an important piece of work, dream of doing so without an interview, if he could help it? On the whole, it seems to me that our examination system would be more efficient if larger use were made of the oral method than is made at present. But there are administrative difficulties in conducting them not to be underestimated.

How, if we cannot calculate them precisely, shall we reduce the bad influences and magnify the good influences of examinations as far as possible? It is a grave problem, and we shall find considerable disagreement in determining what features of examinations belong to one category, and what to the other. Let us, for the moment, consider the influence of the examination on the candidate while it is being actually carried on. There can be no doubt that examinations prolonged over several days, for from four to six hours a day or more, involve a considerable physical strain on the candidates, and the sample of the knowledge and capacity which the examination affords can hardly be regarded as an average sample. With some candidates the excitement and strain make them do better than they otherwise would do; with others the reverse is the case. Ought we to try to reduce that strain? A good many, I fear, would not assent. It has been said, and not infrequently said, that if a candidate fails under the strain, he is lacking in some of those qualities which go to make a successful man, and that though failure in the particular examination does not mean (as the public might, and often do, think) that he has not the intellectual attainments of those who pass, yet that no harm is done. It seems probable—one cannot go further than that—that failure in examinations owing to ill-health takes place more frequently in the case of women candidates than men, and the question of women candidates certainly needs separate investigation; but in the absence of adequate statistical and medical inquiry, the whole hygiene of the examination-room remains obscure. Much more important, in the long run, than the immediate influence of the examination-room on the candidate is the influence of his preparation for the examination during the long years of school and university life. That is a subject too complex and important for me to do more than mention; I would only suggest two things—first, that in some subjects and with some candidates, the influence of examinations may be good and not bad; and secondly, that instead of encouraging by means of examination subjects ill-suited for examination tests, we might try to protect them from those tests. I do not say that it is easy, but I think it not impossible.

If we turn from pass to competitive examinations, we find that they involve all the same problems, and fresh ones to boot. Here it is well recognised that difficulty may be used as the means, not of testing proficiency in subjects that will be required in later life, but to distinguish different candidates in regard to what is called their "general ability." The great choice of subjects permitted by the regulations for the Open Competitive Examination for the Home and Indian Civil Services sufficiently illustrates this point. That particular examination is one of the very greatest importance. Is it really fulfilling its purpose in the best way possible? Prof.

Browne, of Cambridge, in giving evidence before Lord Reay's Committee on Oriental Studies (Minutes of Evidence, page 62), said that, contrary to his expectation, the men selected by the method devised by Lord Cromer, in connection with the Egyptian Services, learnt Arabic more quickly than the men selected by open competition for the Indian Civil Service. I do not say that Prof. Browne's isolated observation proves anything conclusive, but it is significant, and points to inquiry.

Would it be possible, without reintroducing the unspeakable evils of jobbery, to follow the lines laid down by Lord Cromer in the Egyptian Civil Service, and by Lord Selborne in choosing candidates for the Navy? These are questions again for inquiry.

How should such inquiry be carried out? I do not think that any other body than a Royal Commission would carry with it the necessary weight. I believe the Commission should be a small one, presided over by a statesman with great experience of affairs, and that there should be no attempt to achieve the impossible by including in it representatives of all parties concerned. If, following the example set in Prof. Sadler's Moral Education inquiry, and in the recent report of the Consultative Committee of the Board of Education on Evening Schools, the evidence taken were published, not in the unreadable and unwieldy form of question and answer, but in the form of statements on particular topics summarised by the witnesses from shorthand notes, after their examination by the Commission, every person and every interest would have a fair say; and the members of the Commission themselves would not have any undue advantage in giving their own summary of the evidence, and their own conclusions. But such a Commission, to do all that it should do, would need to be far more than a Commission of Inquiry in the ordinary sense; it would need to be a Commission of Investigation. It should have the power to appoint and to pay committees of experts in different subjects, who would carry out investigation under its direction. Take the questions of standard and of marking. Those questions it is quite impossible to investigate without having a large number of candidates' answers lithographed and sent to be marked to different examiners, first without any directions at all, and secondly with directions in regard to the stress to be laid on particular points regarded as of especial importance. Nor would the expert in his subject alone be necessary; the assistance of the statistician would have to be called in at each step. I believe that in this way we might be able to make an examination standard that would mean something very different from what it means now, that would be reasonably, though not rigidly, constant from year to year, and that would substitute the fairness of considered judgment for the fairness of chance, in the case of far more candidates near the border-line. That would be one of the matters for the Commission to investigate. If it were to appoint sub-committees in a half dozen, or a dozen, subjects of examination, the results of the inquiry would probably throw sufficient light on the subjects which it was not possible to touch.

A second question for investigation is the hygiene of the examination-room. How far are we making fair demands on our students in the examinations? How far do they exceed, from the point of view of strain, what it is reasonable to demand?

A third point for inquiry, and that the most difficult, is the influence of examinations, good and bad, on education as a whole. I would only suggest here that different classes of candidates and different subjects require different treatment, and that it should be the object of the Commis-

sion to find some way of protecting from examination those school subjects which are unsuited to them, and in which examinations dig up the roots of the plants which we wish to grow.

Fourthly, the Commission would inquire how far our different sets of competitive examinations select the persons most fitted for the posts which they are intended to occupy.

In this connection the Commission would, no doubt, consider the question of associating with the experts in their particular subjects administrators with experience of the services for which candidates were being chosen.

I have selected four large topics for inquiry: (1) the question of standards and marking, with which is closely connected the question of the precise object of the examination concerned; (2) the hygiene and psychology of examinations; (3) the influences of examinations, good and bad, on previous training; (4) competitive examinations for the Services. But these topics would subdivide, and others would suggest themselves for investigation. A Commission with a suitable reference would find no lack of useful work to do. I suggest as a reference: "To investigate and report upon the methods and efficiency for their purpose of examinations carried on by Government Departments and other public bodies in the United Kingdom; to inquire into the influences of examinations on the previous education of candidates; and to suggest such changes as may seem desirable."

### MEDICAL DEGREES AND LICENCES.<sup>1</sup>

A boy who wishes to become a medical man can qualify either by gaining:

- (1) A medical degree at a university; or
- (2) A licence or diploma from certain licensing bodies.

Medical degrees are granted by every university in the United Kingdom.

Licences or diplomas are granted by the following bodies:

- (1) The Conjoint Board of the Royal College of Physicians of London, and the Royal College of Surgeons of England.
- (2) The Conjoint Board of the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow.
- (3) The Conjoint Board of the Royal College of Physicians and Royal College of Surgeons, Ireland.
- (4) The Society of Apothecaries of London.
- (5) Apothecaries' Hall of Ireland.

Universities and licensing bodies may be divided into two groups:

- (1) Those which do not observe the recommendations and regulations of the G.M.C.
- (2) Those which do.

The former group consists of the Universities of Oxford, Cambridge, and London, and the Conjoint Board of London. The latter group consists of all the remaining universities and licensing bodies. It is convenient to deal with the latter group first.

#### A.—THE CONFORMING GROUP.

A boy seeking qualification through any institution of this latter group must first pass a Preliminary examination in general education approved by the G.M.C., and comprising the subjects stated by the G.M.C.

He must then register with the G.M.C. as a medical student, and begin his so-called professional studies.

<sup>1</sup> A summary of a paper by Mr. A. Vassall to the Association of Public School Science Masters on January 12th, 1911.

These must be carried on at an institution "recognised" by the G.M.C., and must occupy not less than five years.

The institutions "recognised" are grouped into three sections. At the places in the first two sections the whole of the professional work may be studied. At places in the third section (Section III.) only the work for the First Professional examination can be studied. Time spent at places in this last section can only be counted as one year of the five years' curriculum, leaving four years to be completed at an institution in one of the first two sections.

No public schools are included in Section III.

The First Professional examination for students seeking qualification in this group can in no case be taken within six months of registration.

#### B.—THE NONCONFORMING GROUP.

A boy qualifying through any institution of the Non-conforming Group must also begin by passing an examination in general education. This examination must be approved by the particular body the degree or licence of which he is seeking, but not necessarily by the G.M.C.; e.g., Responsions without geometry, which is not recognised by the G.M.C., is approved by Oxford University. A boy taking such an examination cannot register with the G.M.C. as a student, but, of course, none of the Non-conforming Group can avail themselves of student registration by the G.M.C.

(1) For the Oxford degree, the First Professional examination can only be taken by a graduate; it is wholly professional and medical in its nature.

For the Cambridge or London degree, and for the licence of the Conjoint Board, the First Professional examination comprises only pure elementary science, as in the Conforming Group.

(2) For the Cambridge degree it can and should be taken direct from school. The candidate can do this immediately after matriculation and before the ordinary work of the term begins. No conditions are exacted beyond the single one that the Previous, or an equivalent, examination must have been passed.

(3) For the London degree, the First Professional examination cannot be taken during a certain period after matriculation.

For an external student this period is nine months if he matriculates in the summer and six months if he matriculates in January. The subjects may be studied anywhere. Any period not more than one year from matriculation counts as the same period of time for the purposes of the professional curriculum. Thus a boy staying a year at school after matriculating can have taken the First Professional examination and completed one year of the professional curriculum before leaving school.

The same is true for a boy who becomes an internal student *after* passing the First Professional examination, but if he becomes an internal student before passing it, he must then follow an approved course and wait either six or nine months before offering himself for this examination.

(4) For the licence and diploma of the Conjoint Board, registration by the G.M.C. (as a student) is also unnecessary. A Preliminary examination, approved by the Conjoint Board (and not necessarily by the G.M.C.), must be passed. The subjects of the First examination may be studied at any place "recognised" by the Board. The Board "recognises" public schools, in addition to other institutions.

Time spent at a public school (if it is "recognised") counts as six months of the professional curriculum of four years nine months, provided:

(1) The Preliminary examination is passed six months before leaving school;

(2) Certificates, signed by the school authorities, are produced, stating that the candidate has attended 180 hours' instruction and laboratory work in chemistry, 120 hours in physics, and, if biology is offered, 120 hours in this subject.

The courses may be spread over the boy's school career, and need not run concurrently, and need not all be subsequent to passing the Preliminary examination.

### HISTORY AND CURRENT EVENTS.

THE King's libel action has points of interest to students of history. We do not refer specially to previous instances of similar scandal, such as the story of Hannah Lightfoot, a member of the Society of Friends, whom George III. is said to have married shortly before his accession to the throne, but to the points of constitutional law that were mentioned in the course of the trial. The accusation was made one of criminal libel only, not of seditious as well. The "seven bishops" were accused, our readers will remember, of publishing a seditious libel. But that is a question of statute law, i.e., of written law. Where is the law written down that prevented the King from entering the witness-box? It was "without precedent," said the lawyers, and *therefore* "contrary to the constitution." Could anything more directly prove that "constitutional" means merely "usual," nothing more? If, in spite of "the constitution," the King had given evidence, would that not have created a precedent, and thus altered the constitution? What could legally have prevented him? "The King can do no wrong."

WHAT is marriage? Is it only a civil contract? or is it only a sacrament? or is it both? According to the answer given to these questions, questions arising out of it belong to the jurisdiction of the State or of the Church, or it lies on the border-line of the two claimants to universal rule which have carried on their conflict one with another, at least since the time of Hildebrand. In the Middle Ages, marriage and all its difficulties were left to the Church, as Henry VIII. of England found to his cost, and even he did not apparently think of the modern alternative of making it merely a civil contract, but merely put an end to the "foreign" jurisdiction of the Pope. That is why we are still in difficulty as to marriage with a deceased wife's sister, and the marriage of persons divorced by the State. But the Irish folk, or at least some of them, are indignant at recent Papal action, because they think marriage should be an affair of the lay community as such, independently of their ecclesiastical affinities.

DR. BRYCE, now our Ambassador to the United States of America, is known to students of history as the author of two books, one on the Holy Roman Empire, the other on the country of his present residence. To the former he can scarcely add, since the Roman Empire died at some uncertain date, and was certainly buried in 1806 amid the storm of Napoleonic convulsions; and the chapters on the German Empire are confessedly of the nature of an appendix. But he has recently brought out a new edition of the other book, because thirty years of history in America have in certain respects made the original out of date. We find, however, in this new edition that, in some respects, even the "Americans," as they call themselves and have taught the world to call them, are curiously old-world-like. The first "amendment" to the Federal Constitution of 1787 lays it down that "Congress shall make no law respecting an establishment of religion,

or prohibiting the free exercise thereof," and folk in general have come to understand that the United States led the way in "religious liberty and equality," whatever meaning we may attach to that phrase. But we are too apt to forget that the "States" of North America, though "United," are still "States," and are in some respects sovereign, that when they made their famous constitution they gave to President, Congress, and the Federal High Court of Justice only certain powers and no others, and that therefore to know the whole law of that country we must read, not merely the Constitution of the Federation and Acts of Congress, but also the Constitution of each State and the Acts of its Legislature. And Dr. Bryce tells us that "six Southern States exclude from office any person who denies the existence of a Supreme Being, that Pennsylvania and Tennessee add, as a test of office, the requirement of belief in a future state of rewards and punishments, and that in Arkansas and Maryland a man who does not believe in the existence of a God is incompetent as a witness or a juror." How far these requirements secure morality in public life is not now our business to consider, but some people think they are right to "have their doubts."

### ITEMS OF INTEREST.

#### GENERAL.

THE Board of Education is arranging to hold the Imperial Education Conference on April 25th to 28th inclusive. The conference will be attended by representatives of all the home education departments—English, Scottish, and Irish. The replies from his Majesty's dominions beyond the seas are not yet complete, but, as arrangements now stand, of the provincial Governments of the Dominion of Canada, those of Ontario, Nova Scotia, Manitoba, British Columbia, and Saskatchewan, and of the Governments of the States of the Commonwealth of Australia, those of New South Wales, South Australia, Tasmania, and Western Australia, will be represented. The Government of the Dominion of New Zealand and the Union Government of South Africa are sending representatives, while representation will also be arranged in the case of the Governments of Malta and the Straits Settlements certainly, and of seven of the other Crown Colonies possibly. The following local Governments in India are arranging to be represented: the Government of Bombay, the Government of Bengal, the Government of Burma, and the Government of the Central Provinces. It is proposed to devote the first two days of the conference to the consideration of problems connected with school education and the training of school teachers, and the last two days of the conference to the consideration of problems connected with education after the school stage and of certain administrative problems.

THE Teachers' Guild has this year arranged to hold modern languages holiday courses at Honfleur in France, Santander in Spain, and Neuwig and Lübeck in Germany. A preliminary prospectus has been published, and may be obtained at the offices of the Guild, 74, Gower Street, London, W.C. A handbook giving fuller details will be issued this month. These holiday courses are specially intended to promote among English-speaking people a knowledge of the languages, customs, and ways of thought of the countries visited. In order to ensure as much opportunity as possible of speaking the language of the country, careful arrangements are made by which the students board in small parties of two or three with private families. The lectures, classes, and conversation

circles are planned with the view of affording the greatest amount of practical benefit to all. While general subjects of foreign life, conversation, and customs are dealt with, much matter is introduced which is directly intended to be serviceable to candidates for certain examinations in England. Much attention is paid to phonetics and accurate pronunciation generally, and the lectures are given by professors of experience and repute in their own country. Students are recommended to read the authors prescribed for the courses beforehand. All instruction is given in French, German, and Spanish respectively. To derive benefit from the courses, students should have already some knowledge of the written language at least. Those who have no knowledge at all of the spoken language, or very little, are advised to choose the elementary classes in the different centres. The lecturers in the advanced classes speak as slowly as necessary, but assume that their listeners are capable of understanding the spoken language. The courses will commence in all four centres in the first week of August, and will occupy not less than three weeks in any centre.

THE prizes and certificates awarded to students of French in the annual competition conducted by the Société Nationale des Professeurs de Français en Angleterre were distributed on February 4th at the Mansion House. The Lord Mayor presided, and M. Paul Cambon, the French Ambassador, was present. Miss M. A. V. Morgan, Ladies' College, Cheltenham, won the gold medal offered by the Minister of Public Instruction for the highest placed girl student. A similar medal for the most successful male student was taken by Mr. D. B. Burgoyne-Wallace, Cheltenham College. The vases offered by the President of the French Republic for the institutions showing the best results were awarded to the Ladies' College, Cheltenham, and the Royal Military Academy, Woolwich.

THE annual meeting of the Moral Education League was held on February 10th, and was preceded by a demonstration moral lesson by the league's demonstrator, Mr. F. J. Gould. The annual report recorded that Mr. Gould had, during the past year, given demonstration moral lessons all over the country before important audiences, including the staffs and students of twelve training colleges, denominational and undenominational, and under the auspices of a number of local education authorities. The league had opened up during the last two years an important field of work in India. Messrs. Longmans are shortly publishing for the league "Youth's Noble Path," a book of sixty-two moral lessons for use in India. The originality of the book largely lies in the fact that the illustrations for the lessons are drawn almost exclusively from Eastern sources. The league is exerting an influence abroad, and has local secretaries in many countries. Its work is now mainly through demonstration lessons and through its publications; it has issued two new books during the year, some sixteen having now appeared under its auspices. The annual address was delivered by Prof. Lloyd Morgan, F.R.S., who was introduced by Prof. Mackenzie.

We are informed that March 6th is the last day for application for the Common Examination for Entrance to Public Schools. Papers will be sent out on March 14th, and the examination held on March 16th and 17th. Further particulars may be obtained on application to the secretary, Mr. F. Ritchie, Beechview, Sevenoaks.

THE report of the Books and Apparatus Sub-committee adopted at a recent meeting of the London County Council Education Committee contains the following statement about the list of prize books for public elementary

schools, showing the demand for the seventeen most popular books in the fairy-tale and fiction sections during the year 1910, and the position they held in 1909:

| Title                             | Number supplied in 1910 | Position in 1910 | Position in 1909 |
|-----------------------------------|-------------------------|------------------|------------------|
| Andersen's Fairy Tales ...        | 2,839                   | 1                | 2                |
| Robinson Crusoe ...               | 2,283                   | 2                | 4                |
| Tom Brown's School Days ...       | 2,025                   | 3                | 5                |
| Grimm's Fairy Tales ...           | 1,071                   | 4                | 1                |
| Tanglewood Tales ...              | 1,882                   | 5                | 3                |
| Little Women ...                  | 1,625                   | 6                | 7                |
| Lamb's Tales from Shakespeare ... | 1,559                   | 7                | 12               |
| Grannie's Wonderful Chair ...     | 1,437                   | 8                | 0                |
| Old Curiosity Shop ...            | 1,390                   | 9                | 17               |
| Little Duke ...                   | 1,340                   | 10               | 14               |
| Coral Island ...                  | 1,330                   | 11               | 11               |
| Water Babies ...                  | 1,270                   | 12               | 6                |
| Kingsley's Heroes ...             | 1,224                   | 13               | 15               |
| Westward Ho! ...                  | 1,136                   | 14               | 9                |
| David Copperfield ...             | 1,114                   | 15               | 0                |
| Ivanhoe ...                       | 1,006                   | 16               | 0                |
| Peter the Whaler ...              | 1,071                   | 17               | 0                |

It will be seen that the books entitled "Grannie's Wonderful Chair," "David Copperfield," "Ivanhoe," and "Peter the Whaler" had no place among the seventeen most popular books in the year 1909. These four books have superseded "Holiday House," "Gulliver's Travels," "The Pilgrim's Progress," and "Aesop's Fables." The demand for books other than fiction is steadily growing: 1,243 copies of Shakespeare's plays, 982 copies of Tennyson's works, 775 copies of Longfellow's works, and 434 copies of Wordsworth's works were distributed during the year under review. "Captain Cook's Voyages," of which 396 copies were supplied, was the most popular book of travel. There is a marked increase in the demand for the books in the biography, history, and nature-study sections.

A REPORT, by Dr. F. J. Sadler and its education secretary, issued by the Barnsley Education Authority on its Queen's Road Open-air School (session 1910) should afford encouragement to all those who desire to see an extension of this valuable method of coping with the special needs of a too large proportion of physically defective elementary-school children. Struck by the fact that medical examination showed that no fewer than 3 per cent. of its school children were suffering from tuberculosis of the lungs, the committee last year decided on starting an open-air school, on the model of that successfully carried on in Bradford, for about five months, provided that the expenditure was strictly limited and that the parents paid for the food of the children attending the school. Although the only site obtainable was far from being an ideal one, the existing buildings were such as could be made available for the purpose at a comparatively small outlay; and the result of the experiment can only be regarded as in every respect most satisfactory. Of the forty-six children (twenty boys and twenty-six girls) who were admitted, every one received some benefit to its health, and twenty-one out of the forty-six were restored to normal health so far as repeated medical examinations could show. A large proportion made definite advances in application and intelligence, while in all cases the child's education—in its best sense—was distinctly benefited. Yet the greatest gain was observable in matters which defy tabulation—appetite, demeanour, loss of the nervous and self-conscious manner, and an obvious gain in confidence, courtesy, and vivacity. These, of course, are results neither unknown nor unexpected. The special interest of the report lies in its evidence of the extent to which they were collectively dependent on the whole-hearted devotion of each member of the staff, to whose disinterested efforts the social and

economic success of the project must be ascribed. Not only was time and talent given by teachers and nurse, but tact and management in dealing and conferring with the parents secured their contribution of sixpence per day for each child (half-a-crown for the five days in each week during which the children attended at the school), which, by exceptional powers of economical management, was made to suffice for the cost of the three good and varied meals provided daily for each child. Copious appendices showing full details of the weekly diet tables, the cost of the various meals, &c., the hours and nature of the work, and the physical condition of each child throughout the period of its attendance, add materially to the value of one of the most instructive records which have been, as yet, made public on this subject.

HYGIENE and physical training is to be included as an additional optional subject at the certificate examination for teachers in elementary schools to be held in December, 1912. Candidates for examination in this subject must have attended an approved course of physical training beginning not earlier than August 1st, 1911. The special syllabus issued by the Board of Education shows that the bearing of hygiene upon school work and upon the healthy all-round development of children has been the foremost consideration in the framing of both practical and theoretical courses. In view of the great importance of the subject, it is much to be hoped that local education authorities and candidates for the certificate will avail themselves to the full of the opportunities afforded by the new regulation.

WE have received a copy of the first volume of the Report of the U.S. Commissioner of Education for the year ended June 30th, 1910. Not only are American problems of education discussed, but excellent articles are included on educational questions in many other important countries, including England and Wales, Scotland, and Ireland. Dealing with secondary education in the United States, Dr. Elmer Brown, the commissioner, says that the old-time controversy respecting the relations of public high schools to colleges and universities was revived during the year with more than its usual intensity. Quite recently, Dr. M. LeRoy Burton, in his inaugural address as president of Smith College, said that in regard to entrance requirements to American colleges no entirely satisfactory solution has been arrived at, and urged that, though examinations and certificates should not be discontinued, they alone should neither admit nor exclude a student. President Butler, of Columbia University, thinks that the introduction of the human element into the administration of college admission requirement and into college admission examinations is the way out of the difficulty. A committee has been created in connection with Columbia, and the question of the admission of students is entrusted to it. Dr. Brown points out in this report that there are two considerations of a general character which are central to the whole problem. First, it is not merely a demand of the universities, but a genuinely popular demand that American high schools should bridge the gap between the grammar schools and the colleges. Secondly, where the standards of secondary education are uncertain and fluctuating, the colleges must fix their own standard of admission or give up the hope of maintaining an honourable position in the academic world. Similar problems are under discussion with us. A British Association committee is at work collecting material to enable it to make recommendations towards the solution of the problem, and its report will be awaited eagerly.

It is not easy to select any particular article in the current number of *Science Progress* as of special interest to teachers, although the geographer who wishes to keep abreast of his subject will find much valuable information. Prof. J. W. Gregory's account of the iron-ore supplies of the world gives a very definite answer to the repeated prediction of the exhaustion of the world's supply. He shows that there is no such danger, and suggests rather that the trouble in the future will be the limited supply of coking coal available for the reduction of the iron. Industrial changes and the financial policies of separate countries will greatly influence the future demands on the world's supply of iron.

WE have received vol. iii. of the *Journal of the Manchester Municipal School of Technology*, which is a record of investigations undertaken by members of the teaching staff and students during the year 1909. The large number of valuable contributions contained in this handsome volume of 392 pages demonstrates that the high standard of original work previously carried out by the same group of investigators has been fully maintained. Prof. J. T. Nicholson contributes a lengthy experimental investigation on the Laws of Heat Transmission in Steam Boilers. He demonstrates that the hot gases part with more of their heat when their velocity, relatively to the heating surfaces, is accelerated. The same branch of applied science is represented by a paper on heat transmission between fluids and metal surfaces. Engineers will be interested in other papers on forces acting on twist-drills, strength properties of reinforced concrete beams, deflection due to shear, and mechanical ventilation. In electrical engineering there are papers on flash-over voltages, electric traction vagabond currents, design of small direct-current machines, single-phase railways, &c. The Departments of Dyeing and Weaving are well represented by papers on the identification of colouring matter in dyed cotton fabrics, estimation of indigo in dyed cotton, colouring matter of mummy cloths, effect of twist upon yarns, &c. The Department of Chemistry contributes papers on the volumetric estimation of titanium, and of copper and chromium, on carbon tetrachloride, and on the alkyl compounds of platinum. Other papers assist in making this volume a noteworthy contribution to our available knowledge of applied science. The principal and staff are to be congratulated on giving such evidence of the vitality of the work carried on in the Municipal School.

*School Science and Mathematics* for January contains an instructive article by Prof. W. S. Franklin on Bernoulli's principle, and its application in explaining several simple facts of everyday experience. Commencing with a statement of the principle as applied to the change of pressure in a stream of water flowing in a pipe of varying diameter, the writer proceeds to explain how a light ball may be supported in an air or steam jet, the "attraction" of two ships proceeding close together along parallel paths, the falling of a piece of paper, and the curved path of a spinning golf or base ball.

#### SCOTTISH.

THE Earl of Elgin presided at the ninth annual meeting of the Carnegie Trust, held in the Westminster Palace Hotel. In moving the adoption of the report, he took occasion to reply to some of the criticisms that have been directed against that portion of the Trust's operations which is concerned with the payment of students' class fees. As the result of careful and thorough investigations

into certain typical cases, he was able to give an emphatic contradiction to the charge that there has been general and flagrant abuse in this direction. It is specially gratifying to find that already in the early years of the Trust an increasing number of beneficiaries are taking the opportunity to discharge honourable obligations by repaying the sums advanced to them: £549 10s. has been received in this way during the past year, being more than double the amount repaid in any previous year. Mr. Haldane, M.P., in seconding the report, said that the encouragement of post-graduate research is a most important part of the Trust's activities. Already it has done much to raise the standard of university education, and it has the potency of much greater things in the future.

THE report submitted to the trustees by the executive committee shows that the total income for the year was £102,417 16s. 9d. Of this, £48,540 2s. was expended on the payment of class fees, £7,992 15s. 3d. on the encouragement of post-graduate research, and the balance was paid direct to the universities according to a scheme approved in October, 1908. The report directs attention to the precarious position of the fee fund. The number of beneficiaries has shown a steady increase since the inauguration of the Trust, and a proportionate increase in the future would more than absorb the small balance remaining over from this year's operations. It is further pointed out that the universities contemplate altering the basis of their class fees. Instead of charging for single classes, it is proposed to arrange a system of composite or inclusive fees for the courses in the several faculties. Such an arrangement, the committee believes, would make further demands on the resources of the fund. The committee proposes in such an emergency to pay only a part of the inclusive fee, the exact proportion to be determined by the number of applicants. In order to enable the Trust to know by the beginning of each session the exact extent of its indebtedness, intending beneficiaries are requested to apply on or before July 15th each year for the form of application. Teachers in secondary schools should remind their pupils who are preparing for the university of this new regulation.

THE Scottish Inter-University Students' Conference was held this year in Edinburgh University. Sir William Turner, in welcoming the delegates, said that these conferences afford students opportunities of becoming acquainted with affairs, of getting out of the routine of the class-room, and of realising that there are other objects in life than the acquisition of knowledge. For the first time a lady delegate was present at the conference, and it was therefore most fitting that one of the first motions carried should ask that bursaries and scholarships from which women are not expressly excluded by the deed of foundation should be open to women. One of the most valuable recommendations of the conference was that in favour of instituting post-graduate (single session) courses in such subjects as general economics, business method, and commercial subjects generally. Such courses, if held in the evening, would add enormously to the popularity of the universities by bringing them into closer touch with the life of the community.

A DRAFT form of the new superannuation scheme for Scottish teachers, as required by the Education Act of 1908, has just been issued by the Department. Teachers in secondary as well as primary schools come within its operations. The scheme provides for the payment each year into a central pension fund of contributions by

teachers, school managers, and the Department. The maximum retiring allowance is fixed at half the average annual salary during the last five years of service. The scheme marks an enormous advance on the old Superannuation Act of 1899, and Scottish teachers are to be congratulated on the outcome of their long fight for improved terms.

MR. R. JACKSON, Dundee Training College, in the course of an address to the Edinburgh Branch of the Educational Institute, had some hard things to say of the phonic method of teaching reading. He said that every teaching method should be viewed in the light of the three dominant principles of teaching—the end in view, the laws of the subject taught, and the laws of the development of the child's mind. The phonic method, he held, to some extent violated all of these principles. Its chief defects are that it does not represent sounds on scientific principles, that it does not make use of the laws of language, and that it runs counter to the law of development by divorcing the form of words from their meaning. He allowed to it, however, one great merit—it has killed the alphabetic method and paved the way for a scientific system on a phonetic basis.

ALTHOUGH science occupies so prominent a place in the curriculum of all secondary schools, it has failed, so far, to take rank among the subjects prescribed for the University Preliminary and Bursary examinations. Science teachers have always regarded this as an unfair and unworthy slight upon their subject, and have endeavoured in various ways to obtain recognition, but to no purpose. The prospective remodelling of the Preliminary examination and the danger of science again being treated as the Cinderella of the school subjects has led to the formation of an Association of Science Teachers to watch over the interests of science in the Scottish educational system. The birth of another association is to be regretted, but in the circumstances it is inevitable. Mr. J. B. Clark, headmaster of Heriot's School, has been elected president, and Mr. A. Forbes Thomson, George Watson's Ladies' College, secretary and treasurer.

THE Corporation of the City of Glasgow has agreed to give a sum of £100 towards the fund which is being raised to commemorate in a worthy and national form the five hundredth anniversary of the foundation of St. Andrews University.

#### IRISH.

THE annual meetings of the Classical Association of Ireland were held in the lecture theatre of the Royal Dublin Society on Thursday, February 9th. At the afternoon meeting Dr. L. C. Purser, Fellow of Trinity College, Dublin, the distinguished Latin scholar, was elected president for 1912, and the association decided to continue in 1912 the £5 prize for Greek which has been accepted by the Intermediate Board for the preparatory grade of this year. At the evening meeting the chair was taken by Sir Samuel Dill, professor of Greek in Belfast, retiring president; and the president for this year, Dr. J. M. Starkie, the new chairman of the Intermediate Board and Resident Commissioner of National Education, and the well-known editor of *Aristophanes*, delivered his inaugural address, on "Early Attic Comedy and its bearings upon the Political and Social Life of Athens."

SIR SAMUEL DILL paid the tribute of the association to the memory of Mr. Butcher, who was their first president—called to the office as one of the most dis-

tinguished Irishmen in the ranks of English scholarship. When Mr. Butcher went as a young man to act as tutor of University College, Oxford, in the early seventies, his reputation as a finished scholar was even then prominent. For many years he dominated the classical education of Scotland from his chair in Edinburgh. His devotion to education perhaps absorbed too much of his time, but in his translation of the "Odyssey" and his edition of the "Poetics" he has left works which have the sure stamp of enduring vitality. He, with Sir R. Jebb, showed how the rarest scholarship and learning might be linked with the rarest literary art and charm of exposition. Like Jebb, he showed that a man of learning could be also a man of affairs, and could hold his own in the field of Parliamentary strife. Seldom has a single generation given two such shining examples of the combination of learning, capacity for public life, and delicate literary skill. But, after all, those who had the privilege of knowing Butcher cherished his memory for qualities far higher than any of these. His was a beautiful character in its unselfishness and desire to help all good causes, in its combined gentleness and manly courage, in a charming courtesy which was the flower of a rare inner culture of mind and heart. They who had been associated with him in the cause of culture were divided, as Irishmen always would be, on questions of religion and politics, but he was confident that all good and generous Irishmen were united in regarding Mr. Butcher as a good man, a great scholar, and one who by character and distinction did honour to the country of his birth and his affection.

DR. STARKIE delivered a brilliant address on Aristophanes and his influence on Athens, dividing his subject into four parts: (i) The origin and form of early Attic comedy; (ii) Political life at Athens as reflected in early Attic comedy; (iii) The social question; and (iv) Education. The concluding paragraph ran thus: "Aristophanes is not to be revived: the excesses of this Attic Rabelais, if reproduced in Ireland, would probably be suppressed by the police; and his outrageous libels upon prominent statesmen would make Mr. Redford's hair 'to stand an end like quills upon the fretful porpentine'; but, as George Meredith says, if Aristophanes' methods were studied, some of the fire in him would come to us, and we might be revived." The meeting was also addressed by Prof. Beare, of Trinity College, and by Prof. Browne, of University College, Dublin.

THE Intermediate Board of Education has issued the time-table of its examinations for this year. The examinations will begin on Friday, June 16th, and continue until Friday, June 30th, with holidays on the 22nd, 23rd, and 26th. The arrangement of subjects is considerably altered this year, the special papers being all reserved to the end. The opening day has an unhappy combination of three heavy subjects, viz., Latin, French, and German, which should have been avoided.

THE agitation in favour of the reform of the intermediate system, especially on its financial side, continues, together with a demand for a proper teaching profession. For example, at a large meeting held by the Association of Secondary Teachers in Cork early in February, Dr. Windle, president of the University College, proposed "that the efficiency of the teachers must always be the main factor in the success of every system of education; that the present position of teachers in the secondary schools in Ireland is most unsatisfactory, and we are strongly of opinion that a regular profession of secondary

teachers, with adequate salaries and pensions, should be immediately established in Ireland, and that this should be made an integral part of any new arrangements for Irish Intermediate education." Resolutions complaining of the instability of intermediate finance, and asking for a scheme of scholarships for primary schools leading to secondary schools, were also passed. At a similar meeting of the Gaelic League in Dublin, Mr. John Dillon, M.P., enumerated as reforms which might be obtained this year: (i) the creation of a recognised profession of secondary teachers by registration; (ii) a substantial increase in the rate of their salaries; (iii) some system of promotion; (iv) some improvement in the conditions of tenure; (v) a pension scheme of some kind.

ON January 28th a meeting of the Senate of the University of Dublin was held in the examination hall of Trinity College to consider a clause in the proposed King's letter for the reorganisation of the University dealing with the constitution of the University Council. In place of the present council of sixteen members and the Provost, a new council is proposed of eighteen members and the Provost. The Board of Trinity College, which at present elects four members, will elect only two, the registrar and the senior lecturer, who are now members of the board and council, being members *ex officio*. The Senate will elect four. The junior fellows, professors, and King's professors together will elect six. Two others are to be elected by the professors and lecturers of the School of Physic, and one each by the professors and lecturers of the School of Law and the School of Engineering respectively. The Divinity School is dealt with in another part of the King's letter. The clause, which was approved by a large majority, will give the professors, as well as the fellows, representation on the University Council.

THE following course of commercial lectures, open to the public, is being given by Prof. Meredith in Queen's University, Belfast: January 17th, "Conditions which promote Combinations of Capital"; January 24th, "Classification of Industrial Combinations"; January 31st, "The Growth of Cartels in the German Empire"; February 7th, "The Growth of Trusts in the United States"; February 14th, 21st, and 28th, "Combinations in the United Kingdom"; March 7th, "Economic and Social Effects of Combinations, with some Considerations of Public Policy."

THE Department has reprinted from vol. xi. of its *Journal*, as a separate pamphlet, the article, fully illustrated (the eighth of a short series), on "Technical Instruction in Londonderry." These articles relate to centres differing widely in population and needs, and it is believed that they will be of interest and value in view of future developments in towns in which permanent buildings have not yet been provided. The Department also announces that it will award, on the result of an examination to be held at the end of June, three teacherships in training tenable at the Metropolitan School of Art, Dublin.

#### WELSH.

THE Welsh Department of the Board of Education has sent out a circular to the local education authorities and educational institutions in Wales embodying a scheme for the preservation of documents, publications, &c., relating to education in Wales and Monmouthshire. It is pointed out that "many documents which will be wanted by the future historian of Welsh education are in danger of



perishing—notably the records of the old School Boards and Attendance Committees; some of these records are known to be still lying in the offices of former solicitors and clerks to these bodies. Moreover, no systematic measures are as yet in operation for collecting in one centre the current documents issued by the Welsh authorities, and thus there is no little danger that the material for tracing the progress of even new movements and fresh experiments now being attempted in Wales may fail to be available."

The plan proposed to the authorities is that each education authority is requested to forward to the Board of Education six copies of their printed documents. Of these copies, one would be deposited in the National Library of Wales at Aberystwyth; others would be filed in the library of the Board, together with similar publications from English authorities, ordinarily supplied by those bodies from 1904. The remaining copies would be made available for the use of the administrative officers of the Welsh Department.

In addition, corporations, theological colleges, and other educational institutions are invited to assist the Board of Education in making as complete as possible the above-named collection of original material—though these bodies are only asked for two copies, one of which is to go to the National Library.

MRS. MARY DAVIES, who has done such excellent work for the Welsh Folk-song Society, has recently given a lecture at Carmarthen on "The Folk-songs of Wales." In the course of her lecture, she said that the folk-song gathered its value from being the spontaneous and unconscious utterance of the people, though they might be unlettered. The hypothetical originator of a folk-song might sing it to many others, who, in their turn, would sing their respective versions as their artistic predilections suggested, and in that way the tunes varied in detail until only those which had stood the test of time survived. Since the Welsh Folk-song Society was formed at the Carnarvon National Eisteddfod in 1900, it had become a considerable force, and the collection already got together more than justified the existence of the society. The search for folk-songs was highly interesting, but sometimes deeply disappointing; Wales in the past had not sufficiently recorded these utterances of the people.

REPORTS have been presented to the Swansea Education Committee showing that there is serious overcrowding at some of the schools under the authority, and recommending that the Brynmill and Dyfatty schemes, costing £9,500 and £9,600 respectively, be first taken in hand. With regard to the overcrowding at the Terrace Road, St. Helen's, Rutland Street, York Place, Oxford Street, and Parochial Schools, the committee has recommended that Mr. Lawrence, architect, be instructed to report on the utilisation of the present Training College as an elementary school, and the conversion of Rutland Street School into a school for boys. The Superintendent of Education also has presented a report on the vexed question of the increased staffing of schools, on which point strong representation had been made by the Board of Education.

The Law Society has drawn up a scheme for legal education in Wales. This scheme is particularly concerned with the legal education of articled clerks as well as university education in law. The board consists of three representatives of the Law Society; two each of the

Swansea and Neath Incorporated Law Society, the Aberdare and Merthyr Incorporated Law Society, the Newport and Monmouthshire Incorporated Law Society, the Chester and North Wales Law Society, and the West and Mid-Wales Incorporated Law Society; two representatives of each of the three Welsh University Colleges, and three representatives of the University of Wales. The board will arrange for courses of lectures, and the legal instruction subsidised by the board is, so far as possible, to be conducted by the professors and lecturers in law of the constituent colleges of the University of Wales.

#### SWISS.

In September last the Swiss Society of Public Utility celebrated its centenary. Founded with a view to the amelioration of poverty, the improvement of education, and the encouragement of agriculture and trade, the society has received cordial support from members of all parties and churches. In the course of its existence there is scarcely a work of public spirit in which it has not participated, and not a few have been inaugurated by it. The suppression of begging, the introduction of gymnastics in schools, the foundation of domestic economy classes, the establishment of pauper schools, the formation of continuation classes for teachers, the organisation of a *colporteur* system, and measures for the care of the factory worker—these represent some of the society's interests in the first fifty years of its existence. In more recent years the opening of rescue homes, the care of the youthful criminal, the organisation of employment bureaux for young people, the foundation of special schools for the blind, for the deaf and dumb, and for those of feeble powers, have made large claims on the society's energies.

A RECENT writer in the *Spectator*, who calls Switzerland the Maiden Aunt of Europe, dwells on the virtues and philanthropies of the native Swiss. He describes them as throwing open their country to the oppressed of all nations, whose views on morals and politics are not infrequently of doubtful nature. Throughout all temptation the Swiss have remained untouched, and the writer confidently asks for an instance of a Swiss ne'er-do-well. A reader who knows the abject state of Switzerland when Pestalozzi was working at Stans may well ask the reason of the change. There may be many reasons, but there is no doubt that the Swiss Society of Public Utility deserves the major part of the praise. Those who wish to follow more closely the work of the society may be referred to "Die Geschichte der Schweizerischen Gemeinnützigen Gesellschaft" (Zürich: Zurcher und Furrer; 343 pp., 3 francs).

THE long-expected Swiss school atlas has been published. The schools of the Republic were dependent on foreign supplies up till 1872, when Wettstein produced an atlas which satisfied demands for many years. In 1899 the conference of cantonal directors of education broached the subject of a national atlas. Two editions, of 136 pp. (365 mm. by 290 mm.) for secondary and a smaller for primary schools, were projected. Detailed discussions on form, contents, and projections will be found in the Swiss year-book of education, 1906. The finished article is now on sale. In view of the great financial aid given by the Federation, the price to national schools is 6.50 francs, but the cost is about 10.50 francs, and foreigners ordering copies must expect to pay at least that amount. There are two editions, in French and in German. An Italian edition will appear when funds permit.

## TEXT-BOOKS IN GEOGRAPHY.

- (1) *Distant Lands*. By H. J. Mackinder. vi+296 pp.; illustrated. (Philip.) 2s.
- (2) *The Reigate Sheet of the Ordnance Survey*. By Ellen Smith. xix+110 pp.; six maps in colour; illustrated. (Black.) 3s. 6d. net.
- (3) *Man in Many Lands*. By L. W. Lyde. iv+184 pp.; illustrated in colours. (Black.) 2s. 6d.
- (4) *Home-work Atlas of Maps in Black and White*. Edited by L. W. Lyde. 15 pp.; twenty-four maps. (Black.) 1s.
- (5) *Great Britain and Ireland*. By J. B. Reynolds. viii+184 pp.; maps and illustrations. (Black.) 1s. 4d.
- (6) *The British Isles in Pictures*. By H. Clive Barnard. 64 pp.; illustrations, thirty-two in colours; map. (Black.) 1s. 6d.
- (7) *Cambridge County Geographies*. *Cornwall*. By S. Baring-Gould. x+164 pp. *Devonshire*. By F. A. Knight and L. M. Dutton. xii+246 pp. *Dorset*. By A. L. Salmon. ix+154 pp. *Derbyshire*. By H. H. Arnold-Bemrose. x+174 pp. (Cambridge University Press.) 1s. 6d. each.
- (8) *Beautiful England Colour Books*. Pictured by Ernest Haslehurst. *Canterbury*. By Canon Danks. 56 pp. *The Thames*. By G. E. Mitton. 56 pp. *Windsor Castle*. By E. Thomas. 56 pp. *Oxford*. By F. D. How. 56 pp. *Shakespeareland*. By Walter Jerrold. 63 pp. *The English Lakes*. By A. G. Bradley. 56 pp. (Blackie.) 2s. net each.
- (9) *The Oxford Geographies*. *Physiographic Introduction to Geography*. By A. J. Herbertson. 120 pp. 1s. 6d. *The Senior Geography, with Physiographical Introduction, Questions, and Statistical Appendix*. 4s. (Clarendon Press.)
- (10) *First Books of Science*. *Physical Geography*. By W. Maclean Carey. viii+150 pp. (Macmillan.) 1s. 6d.
- (11) *The Senior Scientific Geography*. By Ellis W. Heaton. 861 pp.; maps and diagrams. (Ralph, Holland.) 5s. net.
- (12) *The Junior Scientific Geography*. *The British Isles*. By Ellis W. Heaton. viii+127 pp. (Ralph, Holland.) 1s. net.
- (13) *The Advanced Class-book of Modern Geography*. By W. Hughes. 866 pp.; maps. (Philip.) 4s. 6d.
- (14) *Tarr and McMurry's Five Book Series*. *First Part: Home Geography*. x+112 pp. 2s. 6d. *Second Part: The Earth as a Whole*. ix+167 pp. 2s. 6d. *Third Part: North America*. xix+469 pp. 4s. 6d. *Fourth Part: South America and Europe*. xix+378 pp. 3s. *Fifth Part: Asia and Africa*. ix+210 pp. By R. S. Tarr and F. M. McMurry. Maps; illustrations. (Macmillan.)
- (15) *A Laboratory Manual of Physical Geography*. By R. S. Tarr and O. D. von Engel. xvii+362 pp. (New York: The Macmillan Company.) 6s.
- (16) *A Regional Geography for Intermediate Classes*. By F. Mort. viii+280 pp. (Oliver and Boyd.) 1s. 9d.
- (17) *A Systematic Geography of Asia*. By G. W. Webb. vi+100 pp. (Methuen.) 1s.
- (18) *Experimental Geography*. By G. C. Dingwall. vi+168 pp. (Bell.) 2s. 6d.
- (19) *Common Commodities of Commerce*. *Cotton*. By R. J. Peake. viii+122 pp. (Pitman.) 1s. 6d. net.
- (20) *Edinburgh and District. An Introduction to Geography*. By T. S. Muir. 113 pp.; illustrations; maps. (W. and A. K. Johnston.) 1s. 6d. net.
- (21) *Twentieth Century Geography Readers*. *Book VII. The Regions Beyond*. 248 pp. (Chambers.) 1s. 6d. *Manual to Above*. 52 pp. 3d.

(22) *Wider Britain, Past and Present*. 320 pp. (Chambers.)

(23) *Our Own and Other Lands. Our Own Country*. 224 pp. 1s. 3d. *The Motherlands*. 256 pp. 1s. 6d. (McDougall.)

(24) *Philip's Model Geography*. *Europe*. *Asia*. *America*. *Australasia*. *The British Empire*. 96 pp. each. *Africa*. 80 pp. (Philip.) 6d. each.

(25) *The Magic Carpet Geography Readers for Juniors*. *Trips Abroad*. *Norway*. *Italy*. *Egypt*. By F. H. Shoo-smith. 32 pp. each. (Charles and Dible.) 2d. each.

(26) *Grieben's Guide Books*. *Norway and Copenhagen*. 149 pp. 3s. *The Rhine*. 147 pp. 3s. *Holland*. 151 pp. 3s. *Munich*. 94 pp. 1s. 6d. *Dresden*. 90 pp. 1s. 6d. *Brussels and the Universal Exhibition*. 84 pp. 1s. 6d. *Universal Exhibition in Brussels*. 31 pp. 6d.

THE regard in which geography is held in the schools is strikingly illustrated by the batch of books before us, some of which exemplify the attitude of those who consider that geography is a science, others the attitude of those who regard geography as merely a subject in which a certain amount of information is to be conveyed to the pupil, and, finally, others which are typical of the humanistic outlook. For those who have faith in the humanistic attitude, Mr. Mackinder has carried his study of geography as a culture subject a stage further. This book (1) provides the second year's work, and continues the presentation of geographical fact by means of a historical introduction. The practical teacher may think that much time is spent on certain points, such as latitude and longitude, when they can be more quickly dealt with from the point of view of the mathematics lesson, and they may also think that the strictly geographical matter contained in the book, the maps, &c., appear to call for a greater knowledge of geographical principles than this course has yet attained. Teachers should read this book.

As a scientific monograph on a small scale, Miss Smith's study of the district shown on "The Reigate Sheet of the Ordnance Survey" (2) is somewhat disappointing in the apparent lameness of the conclusions. Miss Smith has made herself familiar with the district; she writes from first-hand experience, and yet the wording of her text, with its frequent use of "probable" and "doubtless" makes it appear that she is not sure of her ground. In conclusion, Miss Smith answers the question she herself raises, "Are such studies of small areas worth while?" in an emphatic affirmation, with which most teachers will agree, provided they lead to results which are capable of definite statement.

Prof. Lyde (3) ranges the world, and states his conclusions with no lack of precision; the chain of causation which Miss Smith suggests as probable Prof. Lyde affirms positively. "It is therefore not the access to Atlantic-borne cotton or local coal or Pennine water-power that has drawn the Lancastrians into the cotton trade, but their high relative humidity," is an example of the pithiness and directness of these statements. The book should be studied; it is well illustrated in colours.

The Home-work Atlas (4) is not up to the standard previously set by the same publishers in the British Empire atlas recently reviewed in these columns. What is the teacher—let alone the pupil—to make of the following, among other points: (i) mean summer temperatures in N. America cooler than mean winter temperatures; (ii) mean summer temperatures in one case for three months and in others, apparently the mid-summer month only; (iii) mean summer rainfall—how is the mean calculated, and for how many months?; (iv) no tundra in Canada.

"Great Britain and Ireland" (5) is a modified reissue of a recent work by the same author, "Ireland and Great Britain in Outline," noted in these columns in September, 1910. Mr. Barnard's book (6) is an admirably illustrated reader for juniors; but why the statements "volcanoes or burning mountains" and the Black Country as "part of the pottery district"? The six volumes of the "Beautiful England" series of colour books are well illustrated and printed, and should serve as library books or prizes.

In October, 1909, we directed attention to a blemish in the "Cambridge County Geographies" (7)—"the Gulf Stream myth in all its pristine nakedness." "Devonshire" repeats the myth (p. 98); and the other volumes contain this modification: "The prevalent south-westerly winds cause a *drift* of the surface waters of the Atlantic towards our shores, and this warm *current*,<sup>1</sup> which we know as the Gulf Stream, is the chief cause of the mildness of our winters." These volumes are replete with facts, and will be of value in school libraries. Teachers might find "Cotton" (19) of service in "getting-up" facts about this commodity.

Prof. Herbertson's well-known "Senior Geography" has been reissued with the addition of a physiographical introduction, questions, and a statistical appendix (9). The preparation of the new edition might have led to the revision of some of the facts in the "Senior Geography" in the light of the information published by the various countries in their Blue-books. For example, it is suggested that Punjab-grown wheat is shipped at Karachi, and that the traffic in this commodity down the Ganges valley has ceased. Approximately, one-sixth of the wheat sent from the Punjab reaches Calcutta by rail or river. The conditions under which "ranching" is carried on in the United States have changed, and the cattle are no longer semi-wild as stated. The physiographical introduction throws a great burden of explanation on the teacher, and contains a useful chapter on map-nets.

Mr. Carey's book (10) on the same subject relieves the teacher by an apparatus of exercises and questions, and by the graduated development of the matter, from a great part of this burden. The text and illustrations appear to force the desired conclusions on the pupil.

Mr. Heaton's books (11 and 12) are of the pemmican type, and appear to appeal to the examination candidate. The teacher will probably doubt whether the geological element is not too pronounced, and whether the substitution of diagrams for maps does not tend to produce misapprehensions. The Advanced Class-book (13) aims at being a work of reference for teachers of geography. The point of view is that of some years ago; modern facts are interpolated or are added as footnotes; the treatment of climate is, on the whole, out of date.

The Five Book Series (14) comprises interesting, well illustrated, and clearly written books from an American viewpoint. Causal connections and the human element are prominent, and the series is an excellent combination of reader and text-book which should find a place in school libraries, and might be used with advantage for "home reading." Teachers should see the Laboratory Manual (15) for a highly suggestive treatment suitable for forms which can spend a fairly long time on North America.

Mr. Mort's book (16) is regional in its discussion of the broad facts of the continents. Statistics are not well treated. The treatment of minerals is uneven; as regards India, the facts are accurate and up-to-date, but in the cases of Japan and the United States the treatment

is vague and scanty. Oats in Ireland, U.S.A., and Canada appear here, as in many other books, to be ignored. There is no index.

There is an essential unity in the build of Asia. Mr. Webb (17) makes this clear, but does not clearly develop from this the consequences as regards the people and their occupations. It is more important to know that the miners in India actually mine coal, mica, and manganese (the two latter almost more extensively than elsewhere) than that "iron is widely distributed."

Mr. Muir's little book (20) is excellent in conception and production, and will be useful in the libraries of those schools where it cannot be used as a class-book.

Mr. Dingwall confines his practical geography (18) to work on directions, surveying, simple contouring, the study of map projections of Ordnance maps and Admiralty charts, and of the climate factors. The range of difficulty of the exercises is great, and little help is given as to the time in the school course when these should be attempted.

The geographical readers' (21-23) are interesting and well illustrated, frequently in colours, and the teacher will probably find difficulty in making a choice for his use. The condensed text-books (21 and 24) should be useful to those teachers who prefer to use the blackboard and the lantern rather than the fuller text. The Magic Carpet Series (25) appeal to the wonder element in the child mind. Grieben's Guides (26) fit the pocket and are compact with useful information. The maps are good.

## OLD FRIENDS.

(1) *The Abbot*. By Sir Walter Scott. 518 pp.; illustrated. (Frowde.) 2s. Also, at the same price, *The Fortunes of Nigel*, 566 pp.; *The Antiquary*, 510 pp.; *The Monastery*, 452 pp.

(2) *The Life of Nelson*. By R. Southey. 235 pp. *Tales from Shakspeare*. By Charles Lamb. 221 pp. Also *Tom Brown's School Days*. 266 pp. (Blackie.) 1s. 6d. each.

(3) *Carlyle's Lectures on Heroes*. Edited by P. C. Parr. 256 pp. With Introduction and Notes. (Clarendon Press.) 2s.

(4) *Letters from High Latitudes*. By Lord Dufferin. With an Introduction by Dr. Macan. 261 pp. (Frowde.) 1s.

(5) *Wives and Daughters*. By Mrs. Gaskell. With an Introduction by Clement Shorter. 755 pp. (Frowde.) 1s.

(6) *The Odyssey of Homer*. Translated by William Cowper. Everyman Series. 368 pp. (Dent.) 1s.

(7) *Joseph Andrews*. By Henry Fielding. Everyman Series. 387 pp. (Dent.) 1s.

(8) *Chronicles of the Pilgrim Fathers*. With Introduction by John Masefield. 364 pp. (Dent.) 1s.

(9) *The Study of Celtic Literature and other Essays*. By Matthew Arnold. 260 pp. (Dent.) 1s.

(10) *A Literary Historical Atlas of Europe*. By J. G. Bartholomew. 250 pp. (Dent.) 1s.

A GROUP of old friends, some with very attractive new faces, looks in on us with the new year. All honour to the people who, in the face of rebuffs, prepare the immortal Scott for schools. As has been pointed out dozens of times, the children are not at fault if they do not get interested in Nigel and Heriot, in Mary and Rizzio. Children are ever ready for romance: it is the teachers who are old. The same influences that have exalted the music-hall have sapped Scott's fame. Perhaps, however, there is a reaction, for recently a large and

<sup>1</sup> Italics ours.

loving concordance to the novels has been published. Before us are "The Abbot" (1), "Nigel," "The Monastery," "The Antiquary," all clear, well-bound, well-opening volumes, fully illustrated—a delight to the teacher who has to deal with a class as yet unspoilt.

Southey's (2) "Nelson," Lamb's "Tales from Shakespeare," and the immortal "Tom Brown" are, though very cheap, slightly more resplendent. Carlyle's (3) "Heroes," with a long and discriminating introduction and selections from Carlyle, deal with one who, *pace* last century, is not yet a classic. Man cannot live by cursing alone, and it requires discernment on the teacher's part to avoid making the autocratic sage into a careless demagogue.

It is a little difficult to place the reprints of Mrs. Gaskell and Lord Dufferin; but it is presumed that people who have long heard of these books, and know how popular "Wives and Daughters" was, will welcome a cheap and worthy reprint. The truth is that Mr. Frowde and Mr. Dent are working for a new public that is only now finding itself: and these enterprising gentlemen follow in the wake of the great, if forcible, awakening to literature which is one of the results of the new education of girls. We do not mean that "Letters from High Latitudes" (4) or even "Wives and Daughters" (5) is published at any schools; but people are asking publishers to see to it that fine work should not simply have a tombstone put up over it. Dr. Macan supplies a preface to Lord Dufferin's famous book, and Mr. Clement Shorter writes one (much too brief) for the others. Both books are in that well-known series, the World's Classics. We have not yet seen any prospectus which explains this title.

Everyman has for his shelves now the "Odyssey" (6) (Cowper's translation); "Joseph Andrews," with an unsigned introduction, admirably written for this and for succeeding books of Fielding; "Chronicles of the Pilgrim Fathers," and a "Literary Historical Atlas of Europe." Of these five books, most people will say that Cowper's "Odyssey" is not likely to attract any English readers to the travels of Odysseus. The answer, of course, is that the only English "Odyssey" worth reprinting is not out of copyright. Indeed, the centuries as yet look in vain for Homer except in his own language, although the Psalms, and Euripides, and Omar, and Aristophanes, and Shakespeare have all been translated into foreign tongues with great access to their fame. It is simply this—Homer's secret is undiscovered. Fielding is, we believe, coming into his own again. "Joseph Andrews," as well as "Tom Jones," has its introduction by Prof. Saintsbury, though in the book there is nothing to show this. The fount used is not so pleasing as in some other volumes. "The Chronicles of the Pilgrim Fathers" (8) is a collection of six documents better known to historians than to the ordinary reader. They were edited by Alexander Young sixty years ago. The introduction tells us not one word about them or about their editor, or about the present editor's "arrangement" of the documents; and the useful bibliography might have with great profit been extended to half a dozen pages. There is a great deal yet to be published in England regarding the early history of the States; but everyone must be thankful for beginnings.

We are a little sorry for Mr. Rhys, who writes a judicious preface to Matthew Arnold's "Celtic Literature" (9). Mr. Rhys must know that Arnold, in writing and lecturing on this subject, had overstepped the limit. "Be bold, be bold, be not too bold," says the inscription in the tale. Other essays are gathered in this volume; and, of course, it need scarcely be said that Matthew Arnold's

prose is, like his personality, a delight. "A Literary Historical Atlas of Europe" (10) is, as the publishers admit, a veritable mixture. It contains a large number of historical maps, such as those of Labberton, Freeman, and Pearson (not to mention the great atlases); then it gives us plates of coins, maps of battles, and, finally, maps in illustration of famous books. A gazetteer and index take up half the book. The editor's name is proof enough that the maps are admirable; the coin section is new; but with all respect to the volume, it does not seem that the shape of the series is that of an atlas. The placing of a map of Westward Ho! next to a quite insufficient map of historic Paris produces an incongruity which is not altogether absent from the whole volume. But, as one often says, the enterprise which puts such an atlas into the hands of poor and struggling students is most laudable; and nothing like the book (at the price of a shilling) has ever been published.

## THE EDUCATION OF GIRLS.

*Public Schools for Girls. A Series of Papers on their History, Aims, and Schemes of Study. By Members of the Association of Headmistresses. Edited by Sara A. Burstall and M. A. Douglas. xv + 302 pp. (Longmans.) 4s. 6d.*

THE Association of Headmistresses is to be congratulated upon having adopted Mrs. Woodhouse's proposal to appoint a sub-committee to make a report on the curricula of public secondary schools for girls. The result of this decision is that, after some two years of inquiry and consideration, students of education are provided with a fascinating and inspiring conspectus of the past and present developments in girls' schools in this country.

The recognition of the need for girls' secondary schools as we know them to-day hardly existed sixty years ago, and we agree with the president of the association that, looking back, "we cannot but be thrilled at the magnitude of achievement" since 1850. The joy which this sixty years' retrospect will give members of the association will be understood easily by those who are familiar with the high efficiency of modern girls' schools and the self-denying enthusiasm of the mistresses in them.

The natural disposition of the pioneers in the movement with which this book is concerned was to model the curriculum for girls on the pattern of what was in their day in vogue in boys' schools. The essays here brought together evince a dissatisfaction with this expedient, and an ever-growing conviction that a girl's needs are distinct from those of her brother. The desirability of some differentiation of curriculum is now recognised, and the future needs of girls in the home and in the world increasingly modify the time-tables of girls' schools. As Miss Gilliland says in her essay:

"Schools that omit all instruction in the preparation for home life, or who, worse still, treat such preparation with hurtful contempt, may, and do, produce fine scholars. But they are doing very little to help our national life, because they are doing nothing to make our girls builders of homes and makers of men."

An appreciation of the difference in type of the average boy and girl mind is leading to a remodelling of the schedules of work in girls' schools, and this is most marked, perhaps, in mathematics and science. Every high-school mistress knows the "non-mathematical girl"; and the uselessness of attempting to interest her in geometrical riders or in algebraic refinements is evident in some of these papers. We agree with the plan adopted in a few

schools of "switching off" such girls from mathematical work in, say, the lower fifth form, and directing their attention to more congenial study.

Similarly, too, in science, evidences of the same tendency are to be found. The old formal courses in physics and chemistry are being displaced by carefully arranged schemes of study designed to illustrate and explain the methods of science by an appeal, to the principles of physics and chemistry, which can be illustrated by the processes in use in the ordinary routine of the house.

But the deepest impression this book will make is through the evidence it provides of the passionate desire for efficiency which marks the work of the secondary schoolmistress. Her everyday work is educational research; she knows and tries the newest and best methods of teaching; she desires conscientiously to do the best possible for each of her girls; and day by day she is inspired with the nobility of the teacher's work.

### SCHOOL PLAYS.

(1) *Historical Plays, Second Series.* By Amice Macdonell. (Allen.) 3s.

(2) *When did you last see your Father? and Just Eighteen!* By M. F. Hutchinson. (Blackie.) 4d.

(3) *Shakespeare's Twelfth Night, adapted for Amateur Performance in Girls' Schools.* By Elsie Fogerty. (Sonnenschein.) 6d.

(4) *Cousin's Young Man.* By E. M. Kimpton. (Sonnenschein.) 6d.

No one who is interested in school plays should overlook the admirable work of Miss Amice Macdonell. The second series of Historical Plays (including "Saxon and Norman," "Magna Carta," "Edward III.," "Cædmon," "The Burghers of Calais," "The Good Queen" [Victoria], and "The Crusaders") is quite as good as the first, to which we directed attention on its appearance. Miss Macdonell's method is to take some epoch, and gathering all sorts of suggestions from original authorities, such as Froissart or the Anglo-Saxon Chronicle, as well as from standard historical novels, such as "Westward Ho!", to weave together a series of scenes, interspersed, wherever possible, with light touches of dance or song. The dialogue is actually composed by the author, and in nearly every play subsidiary non-historical characters—peasants, citizens, and so on—are introduced, whose actions relieve the solemnity of the central figures. For school use, or for performance by amateurs generally, very full and helpful directions are given as to costume and stage arrangement, assisted by diagrams and instructive illustrations drawn by the author. Miss Macdonell is evidently no mean archæologist, and her plans of every kind are eminently practical. In case another edition should be called for, we suggest that an estimate of the approximate cost of producing each play should be given. An account of an actual performance might also be useful. The series would serve excellently as a reading book for the third or fourth standard.

Even a few years have brought about a vast improvement in the plays published for the use of schools. There is no longer a lack of material from which to select, nor any excuse for teachers who continue to alternate between the severity of a classical play and the silliness of a cantata or an inept adaptation of a fairy-tale. The difficulty, however, still remains that there are only twenty-four hours in the day, and that school time is already overburdened with occupation. This problem will never be solved until a serious effort is made by local

authorities to co-ordinate dramatic work in the schools in each district. At present each school, even of a similar grade, works apart from all the others, and waste is caused by overlapping here, as in most other departments of human activity.

Two duologues for girls, by Miss M. F. Hutchinson, of imaginary incidents "after the Battle of Naseby" and "in the time of George I.," deserve attention. The aim of the duologues is no doubt to suggest a historical atmosphere, and in this they are at least as successful as the majority of historical novels and tales. The inclusion for school use of actual historical personages is, we think, a better plan; but in searching for that great desideratum, a play which only needs female players, Miss Hutchinson may be excused for trespassing into the realm of fiction. We would suggest, however, that her pretty talent for dialogue might find material among the lives of many famous women whose memoirs and letters have not yet been ransacked by the historical novelist. There are more notable obscure than are dreamt of by unadventurous playwrights.

Miss Fogerty's practised hand is again evident in her careful edition of "Twelfth Night." That Shakespeare was meant to be acted, and saw in his mind's eye his plays as a stage picture, is a truism that needs constantly to be emphasised. Students who are accustomed to pore over the meaning of single words and phrases from an archaic point of view would derive benefit even by reading Miss Fogerty's stage directions, which illuminate the meaning of the play more than many an annotated edition done by scholars who treat the poet as an armchair philosopher.

It is a pity that so poor and commonplace a piece as "Cousin's Young Man" should have found a place in the otherwise excellent series of amateur plays published by Messrs. Sonnenschein.

F. J.

### THE KNIGHTS OF ARISTOPHANES.

*The Knights of Aristophanes.* With a Translation into Corresponding Metres, Introduction, and Commentary by B. B. Rogers. 1+248 pp. (Bell.) 10s. 6d.

ALL scholars will welcome Mr. Rogers's edition of "The Knights." We know now what to expect from the editor: an introduction, often suggesting new points of view; excellent brief notes, chiefly literary and dramatic; good common sense and humour in critical questions; and an admirable translation. All this work is original in the true sense, that is, the result of his own study: he does not make notes by copying the stock illustrations from other people, but he gives illustrations which, when he has been trying to understand the text, have struck him as useful to explain it.

In critical questions he can hold his own well, although they are subsidiary, not the main thing. He uses the collations of others, and we do not see that he has studied the MSS. themselves: not that that matters very much in this case. A page of comment, however, on the spelling of *ἰππῆς* (p. xxxiv) suggests that he knows nothing of the evidence of inscriptions, so conclusive for this form at the time of our poet. The description of Pylos (p. xii) is not true to facts. If anyone who has seen Sphacteria can believe that the southern entrance in the poet's day was only wide enough to "admit eight or nine triremes abreast," we should doubt his sanity. It is three-quarters of a mile across, bounded by rocks, and all deep water. A suggestion made earlier, that Demosthenes and the Messenians planned the final blow at Pylos (p. xi), is very

attractive. Mr. Rogers has satisfaction in demolishing Grote's account of the Pylos episode (xxiii), which is so good a specimen of several kinds of fallacy that it might have been uttered by a politician of what one might call the Grotesque party.

As to the translation, we can say nothing more than has been said; and surely now we need not. Mr. Rogers is now known to be the most brilliant translator of his time. It is a pleasure to read his verses, unfailing in form, graceful in rhythm, pointed, clever. If they do not really quite correspond in metre to the Greek, that is the fault of the English language. They are varied enough to please our ears, and natural enough not to shock them; and, thank goodness, they are not Swinburnian, or Morrisian, or Phillippian. We prefer the Rogerian to any poet now on the market.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

*French Anecdotes, arranged for Translation, Conversation, and Composition.* By W. F. Giese and C. D. Cool. iii+128 pp. (Heath.) 1s.—There are close on 150 anecdotes in this book, ranging in length from four lines to three pages; it is to the credit of the compilers that few are hackneyed. To most of them French questions have been added. There are also about twenty stories in English, based on certain of the anecdotes, for retranslation. The few pages of notes consist mainly of renderings into good English of difficulties in the text. There is a good vocabulary. The book will be found useful; but reform teachers would be glad to have the anecdotes supplied with more copious questions and with grammatical exercises, and would gladly do without the passages for retranslation and the vocabulary.

*P. Mérimée, Colomba.* Edited by T. de Sélincourt. xvi+160 pp. (Clarendon Press.) 2s.—Among the many school editions of Mérimée's excellent story, Miss de Sélincourt's ranks high. A brief introduction says all that need be said about the author. The notes, which deal almost exclusively with the subject-matter, are excellent, and afford unmistakable evidence of the editor's refined scholarship. A good map of Corsica is a welcome addition.

*Exercises and Tables in English and French Phonetics.* By F. A. Goudge. 8 pp.—Mr. Goudge, who is an assistant-master at Sidcot School, has arranged these exercises for practice in articulation. He suggests that the teaching of singing and of speaking should be more closely connected than is at present usual in our schools; and this view is certainly sound. His slender booklet, however, requires a good deal of expansion before it will be adequate for its purpose, and correction of matters of detail is also needed. For this purpose, the careful study of some such book as Dumville's "Elements of French Pronunciation" would be of service to the author, who should also seriously consider whether the vowel triangle is not better than the arrangement he has adopted. The printing of the phonetic symbols employed is very faulty.

*Hill's Dano-Norwegian-English and English-Dano-Norwegian Vest-pocket Dictionary.* Compiled by H. M. Raahauge. xxii+282 pp. (Siegle: Hill.) 1s. net.—The introduction contains an inadequate "key to the Danish pronunciation," a brief abstract of the grammar, and a list of idioms and common expressions (ten pages). The

dictionary is excellent for the low price, and it has the very convenient shape of 5 by 2½ inches. To the increasing number of English visitors to Denmark and Norway it should prove very acceptable.

*Travellers' Practical Manual of Conversation in English, French, German, and Italian.* 144+8 (blank) pp. (Marlborough.) Paper, 1s.; cloth, 1s. 6d.; leather, 2s. 6d.—This is the second and revised edition of a very useful little book. It contains travel notes, tables of money, and notes on pronunciation (of little value). The bulk of the book (Part II.) is taken up with conversations in the four languages, in parallel columns. Part III. contains numerals and fractions, weights and measures, and a washing list; and Part IV. consists of a little dictionary of about 1,000 common words. Many a traveller will be glad to have this manual in his pocket.

*Passages for Advanced French Prose.* Selected and edited by R. J. Morich. xiv+256 pp. (Rivingtons.) 3s. 6d.—An excellent selection of 200 passages, arranged according to subject-matter and style, and from twenty to thirty lines in length. A few useful notes have been added, mainly consisting of renderings of troublesome English words and phrases. The restraint shown in these notes is wholly admirable, and compares most favourably with the elaborate annotation which is too often thought necessary in books for the teaching of French composition.

### Classics.

*Cicero's Letters.* Selected and edited by E. Riess. lx+306 pp. (New York: The Macmillan Company.) 3s. 6d.—The print in this book is good: the margins are too scanty—the usual fault in school books. Neither schoolmasters nor publishers seem to know how important a wide margin and a rather short line are for the eyes of the young. For that reason we put it first. The editor describes the History of Letter Writing down to the time of Cicero. This is put in four pages, it is true, but none of them to the point. What have the "sad signs" of Bellerophon (what a phrase!) to do with Cicero? What good is there in the rhetoricians' classification? What follows—a sketch of the correspondents—is to the point, but it does not set human beings before us, as Boissier does, for example, in his charming book. Between this and the "language and style" comes a section on the form of the letter, and how it was sent. The *sermo cotidianus* is clearly summarised, and examples are given (*impunite* should be *impuniter*, p. xxxix). A sketch of Cicero's life follows.

It is hardly possible to make a bad selection from Cicero's letters: but we are not told what is the principle of choice here. The letters are arranged in order of time, from 66 to 43. Here are many old favourites, but, of course, many left out we should like to see. We think that the disquisition on government sent to brother Quintus might have given place to some more human documents.

The notes contain a good deal more than is necessary. Something—much indeed—must be left to the teachers and to the pupils: and notes ought to be given only when the intelligent pupil would ask for help. We should omit most of the notes on grammar and style; with the introduction and a good grammar these ought not to be needed. We have noted nothing new in the notes: but if Mr. Riess had no more to say about *Fabam minimum*, he should have explained that the explanation he favours is only a guess (p. 277). Historical allusions are all explained.

**English.**

*Webster's New International Dictionary of the English Language.* Dr. W. T. Harris, Editor-in-Chief. F. Sturges Allen, General Editor. lxxx+2620 pp.; 6,000 illustrations. (Bell.) In sheepskin, £2 13s. 6d.—In our issue for April, 1902 (vol. iv., p. 154), we praised unreservedly the twentieth-century edition of Webster. Now, ten years after, we receive a Webster which is entirely new from cover to cover. It will give some idea of the work of Dr. Harris and his large staff of specialists to say that the present volume represents eight years' labour and an expenditure of £80,000. More than 400,000 words and phrases—as compared with 170,000 in the last edition—are defined, and the general information provided is practically double that in the 1900 edition. The reader who consults the 1911 Webster will be struck at once by the division of every page of the vocabulary into two sections, on the broad principle that the more important and familiar words are given above, and the less important or unfamiliar are in smaller type below. There are altogether some 400 pages more—2,700 as against 2,300—but on account of the excellent thin paper which has been used the volume shows no increase in size. Of the trustworthiness of the dictionary nothing need be said; the name Webster will long remain a synonym for accuracy and scholarship. If any reader should be unfamiliar with the dictionary, an examination of the list of names on the editorial force will assure him of the high authority on which the work is based. Webster is well assured of an extended lease of life. A dictionary such as this is an essential work in every well-equipped library; and if our tribute to its accuracy and never-failing assistance should be the means of extending its sphere of influence we shall have performed a useful service.

*English Composition and Essay Writing.* By J. W. Millar. viii+113 pp. (Longmans.) 2s.—The author claims that his book is an attempt to do for English composition "what has already been so abundantly done for Latin and French." The method employed is largely the excellent one of example. The arrangement is not very happy. After twenty pages of definitions—including the principles of accidence and syntax—we have two chapters on words and the sentence before we reach one on the paragraph. But we strongly hold that an order exactly opposite to this is far more logical and fruitful for young pupils. For them the unit should be the paragraph. Chapter vii., on paraphrasing, is sensible and helpful. The model essays are well worked out—perhaps even with too much detail—but the list suggested for further topics contains a good deal of the familiar remoteness.

(1) *How to Speak English.* (2) *How to Write English.* By a Teacher of English. 60 pp. and 62 pp. (Longmans.) 6d. each.—It is rather difficult to imagine for whom these books are intended. They are both inspired by excellent intentions, but hardly conform to up-to-date methods. The former opens with the statement—not so applicable to this country, we venture to think, as to some others—that the standard of pronunciation of the language of a country is the pronunciation of the theatre of the Capital; but even if we accept the affected artificiality of our stage we cannot admit that we make much headway by saying that the pronunciation of the English *u* is *ee-û-oo*, or by telling a bad speaker that he must pronounce *duke* as *dee-û-oo-k*. A training in the varying characters of sounds by the use of the phonetic symbols would do far more good. The second little book treats of the elementary mechanism of writing—punctuation—and then turns to the

correction of common errors in syntax—a method of teaching the art of writing which, except as a very occasional diversion, has always seemed to us rather soulless and monotonous. The short space devoted to the structure of the essay is fairly sound, and the list of synonyms is interesting.

**History.**

*A New School Atlas of Modern History.* By R. Muir. (Philip.) 3s. net.—Into this series of forty-eight plates, containing 120 coloured maps and diagrams, with an introduction illustrated by twenty-nine maps and plans in black and white, Prof. Muir has packed an astonishing quantity of information. The packing is effected by using one map to indicate changes in extent of territorial power by different colours, and the introduction removes any ambiguity that may arise from that method. It is an excellent companion to history for those pupils who may be studying European history, and even to those whose range is confined to the history of our own country.

*A History of India. Part I. The Pre-Musulman Period.* By R. V. R. Aiyangar. xvi+167 pp. (Longmans.) 1 rupee 4 annas.—We have here an excellent little book. The author gives us not only those stories of conquerors whose kaleidoscopic comings and goings are so bewildering, with their names so strange to us, but he also tells of the races and of the social conditions that have prevailed in India, of the religions and the attitude towards them of the various rulers, so that, in spite of the multitudinous names, we seem to get an idea of the India of the distant past. We shall be glad to see the other parts of this history, and can only add the advice that the author should submit his MS. to an Englishman in order to get rid of what remains (and it is small) of his imperfection in English style. There are a bibliography, a table which is something more than a list of events, and an index, besides many good illustrations.

*Arnold's Shilling English History.* By C. E. M. Hawkesworth. iv+172 pp. (Arnold.) 1s.—The object of the author is to write a book for junior forms and schools where time cannot be spared for a more extensive treatment of the subject, and he has succeeded in guarding against what he feels to be the danger of want of lucidity. The history is not always quite up-to-date, and the terminology is sometimes at fault, but it will probably fulfil the author's intention.

*In Tudor Times,* by E. L. Elias (Harrap, 256 pp., 1s. 6d.), consists of twenty-five "short character-sketches of the great Elizabethans." They include the seven Sovereigns of the Tudor family, six churchmen (Martin Luther the "monk" is among these), four heroes of "the sea" (Columbus, Cabot, Hawkins, and Drake), four courtiers, and four illustrating the Renaissance. There are sixteen illustrations, mostly portraits, and all after old masters. The writer seems to assume, at least in her sketches of the Sovereigns (the others are more biographical), that the reader has at least an elementary knowledge of the period, and for such the book will be found interesting. The opinions expressed challenge discussion, and some of the facts are nowadays at least disputed.

*A History of some French Kings.* By B. Behm. 350 pp. (Macmillan.) 5s. net.—This book has been written at the request of the author's children friends, and is not meant to instruct, but to amuse. So we are assured in the preface. The kings chosen are Louis XI. and from



Francis I. to Henry IV. The story is certainly told in an unusual way, and will fulfil the author's intention to make an impression, to awaken interest, and stimulate to more earnest study. Perhaps the period lends itself to emphasis of personal motives, even petty motives; at any rate, there is more of that emphasis in the book than of the greater forces at work in the fifteenth and sixteenth centuries.

### Geography.

*Physical Geography for Schools.* By Bernard Smith. viii+190 pp. (Black.) 3s. 6d.—This book has been written for the use of pupils in the higher classes of secondary schools, but, despite its great attractiveness, it will hardly meet the needs of candidates offering geography in public examinations. It is descriptive throughout, and no practical exercises are provided to enable the student to discover principles for himself. A want of proportion in the treatment of important subjects suggests that the author is unfamiliar with what precisely is expected in schools nowadays. To give one example: while map projections are ignored and map-reading is given scant attention, an unnecessarily complete account of the formation of lakes is included. Speaking generally, the geological aspects of the subject overshadow to some extent geographical considerations. The book may, however, be recommended for the teacher's library and for the pupils' supplementary reading. The illustrations are uniformly excellent, and the information given is correct and up-to-date.

### Mathematics.

*Elements of Analytical Geometry.* By G. A. Gibson and P. Pinkerton. xxii+475 pp. (Macmillan.) 7s. 6d.—There is no doubt that the tyranny of examination syllabuses has been largely responsible for the lack of elasticity in the conception of what matters may properly be treated in text-books of analytical geometry. Writers, in this country at least, confine their attention to the conic sections, with the consequence that the properties of these curves are developed at a length which is certainly wearisome to all but the most ardent students. The authors of the book before us have ventured to break fresh ground. Inspired largely by Frost's treatise on curve tracing, they have introduced matter which will be found to be of the greatest value in widening the mathematical horizons of the reader. The headings of the chapters containing this novel matter, occupying about one-third of the book, will give some idea of their contents. They are: Graphs of Equations, Polynomials, Graphs of Rational Fractions, Derivatives of Polynomials, Maxima and Minima, Approximate Solution of Equations, Asymptotes. Of course, a number of these topics are now treated in an elementary fashion in most algebras, but they are here discussed in a much more thorough and scientific manner. The straight line and circle occupy the earlier, and the properties of the conic sections are considered in the final chapters. Considerable prominence is given to the "freedom equations" of a curve, that is, the equations expressing the co-ordinates in terms of a single parameter. The inclusion of the subjects mentioned has necessitated the exclusion of others, and so, apart from the use of the methods of pure geometry in some of the chapters dealing with the conic sections, no system of co-ordinates other than rectangular or oblique Cartesian have been made use of. The only criticisms we feel inclined to make are that too many of the examples are of exactly the same type, and that in the earlier chapters, at any rate, the bookwork is developed in such minute detail as to make but little call for independent thought on the part of the pupil.

*Elementary Analysis.* By P. F. Smith and W. G. Granville. x+223 pp. (Ginn.) 6s. 6d.—This may be described as an easy introduction to analytical geometry and the calculus for the use of students of natural science. None of the analysis is of a difficult character. The majority of the examples are numerical, and relate to problems in geometry, mensuration, and elementary dynamics.

*Wentworth's Plane Geometry.* Revised by G. Wentworth and D. E. Smith. vi+287 pp. (Ginn.) 3s. 6d.—We learn from the preface that for a generation this has been the leading text-book on the subject in America, and it certainly appears to merit the esteem in which it is held. The revisers state that the number of propositions has been decreased so as to include only the great basal theorems, and that the number of simple exercises has been greatly increased, while the difficult puzzle is much less in evidence than in most American text-books. A like simplification of exercises has been noticeable in the books published in this country, while, on the other hand, there is unfortunately rather a tendency to increase the number of propositions. At the end there are a number of "geometrical recreations" and a short history of the subject.

*Mathematics for Supplementary and Continuation Classes.* By F. A. Watson. viii+229 pp. (Oliver and Boyd.) 2s.—This book contains so much arithmetic, algebra, geometry, and mensuration as is required by students preparing to enter a technical college. All of it is very elementary in character. We notice that the geometry is entirely practical, a number of theorems being stated in the form of inferences drawn from measurements made on constructed figures. Strictly speaking, to apply the term mathematics to the contents of such a book is a misnomer. It is merely a collection of rules for calculation and construction, and as such we have no doubt it meets the needs of those for whom it has been prepared.

*"Confocal" Conic Stencil.* By J. T. Dufton. (Macmillan.) 1s. 6d. net.—By means of this stencil, ellipses, parabolas, hyperbolas, both rectangular and oblique, can be rapidly drawn. Lines are marked by means of which the axes and foci can be determined. Of course, tracings of particular ellipses and hyperbolas are of limited utility, but the rectangular hyperbola and parabola can be used as standard curves for the graphical solution of equations. For example, any cubic may be reduced to the form  $x^3 + 2ax^2 + bx + 1 = 0$ , and this may be solved by finding the intersections of the parabola  $y = (x+a)^2$ , and of the rectangular hyperbola  $y = a^2 - b - 1/x$ . A biquadratic can be solved by finding the intersections of a standard parabola and a circle. Particulars regarding these matters might be added to the printed instructions sold with the stencil.

### Science and Technology.

*Exercises in Metal Work for Trade Preparatory Schools.* By A. T. J. Kersey. x+70 pp. (Bell.) 1s. 6d. net.—In arranging this little book, the author gives a number of carefully graduated exercises suitable for beginners in metal work; hand tools are first introduced, and the course leads up to simple exercises involving the use of common machine tools, such as drilling and shaping machines and turning lathes. The illustrations are good, and are fully dimensioned; these are intended to be reproduced on drawing paper accurately by the pupil before starting to line out his work on the sheet or other metal employed. The scheme of the book is excellent; by no means the least useful part of it is contained in the preface, where the

author gives some sound hints regarding the successful development of a workshop course for young students. Accurate working should be insisted upon from the beginning, and the later tendency to adopt slipshod methods must be checked. The instructor, who is, or ought to be, a man trained in an engineering works, must cultivate the virtue of patience—often a hard task to a person who has taken up teaching late in life. He must remember, also, that he must encourage his students to think as well as to acquire skill with his hands; otherwise he fails to take his due share in the educational machine. We can commend this book heartily as a useful help in carrying out these sound principles.

*Practical Drawing.* By T. S. Usherwood. viii + 163 pp. (Macmillan.) 2s.—This little book has for its object the provision of a preliminary course in practical drawing for students in evening classes, and is intended to cater for those who will afterwards proceed to classes in practical geometry, machine and building construction. The needs of students attending evening continuation schools have been considered. The author wisely recommends that the class work should be based, so far as possible, on the student's own sketches and measurements of actual objects, and on turning over the pages of the book we find that the illustrations include many common objects which are to be found in any school. Several of the illustrations have the necessary dimensions inserted, and should prove of value in teaching proper methods of recording. In addition to the drawings of common objects, already referred to, some simple examples of machine and building details are given; all are clearly drawn, and may be read easily. The book also forms an excellent introduction to the principles of practical plane geometry and projection, and it is so arranged that the geometrical principles will be absorbed by the student at the same time that his knowledge of machine and building details is growing. There are one or two trifling defects. On p. 4 it is stated that "a vertical line is said to be perpendicular or at right angles to a horizontal line"; it is obvious that, according to this definition, a horizontal line which is at right angles to another horizontal line may be described as being vertical. An illustration of a pair of inside calipers on p. 11 would have been better drawn with the toes pointing outwards, so as to appear ready for use. The book can be recommended as likely to prove of great service to both teachers and students.

*Machine Sketches and Designs for Engineering Students.* By A. Cruickshank and R. F. McKay. viii + 40 pp. (Arnold.) 1s. 6d.—The systematic sketching of machine details forms an important part of the training of an engineer. Apart from the fact that the engineering draughtsman is called upon frequently to sketch and dimension clearly portions of existing machines, either for purposes of record or to enable alterations, additions, or repairs to be executed, the educational value of constant practice in producing well-proportioned sketches of common machine fittings is considerable. The book before us will be of assistance to students in providing a large number of examples, such as fastenings, joints, couplings, bearings, gearing, engine and boiler details, hydraulic fittings, and workshop tools. These are classified on the various sheets composing the book, so that a number of details of one kind are readily accessible. Brief explanations are given of the examples. The drawings are clear and well drawn, perhaps too well drawn for a book professing to encourage students to practise freehand sketching. Many students are too apt to be discouraged by their early failures in sketching, and

attempt to secure results as good as those in their textbooks by resorting to the use of drawing instruments. We should like to have seen some of the examples in the book dimensioned; many students possessing the ability to produce a good freehand sketch of a machine detail require much guidance in the matter of inserting the necessary dimensions, which transfer their work from the art school, as it were, into the region of the engineering drawing office. There is no hint given anywhere as to the scale of any of the designs. This difficulty might have been overcome by the insertion of one leading dimension on each drawing. One of the strongest merits of the book is that the whole of the designs given are modern—too many books of this kind contain a curious mixture of old and new, indicating a lack of care in their compilation.

MESSRS. J. J. GRIFFIN AND SONS, LTD., Kingsway, London, have submitted a copy of the fourteenth edition of their "Scientific Handicraft." The volume, which extends to 1,037 pages, is a remarkably complete and well-printed descriptive catalogue of the apparatus and appliances required in many departments, other than chemical, of a technical school. In addition to the requirements of the several branches of physics, it is noticeable that the catalogue includes lists of appliances necessary for wood-work, metal-work, applied mechanics, building and machine construction, astronomy, hygiene, physiology, meteorology, and electroplating. Descriptive lists of appliances for gas-testing, resistance-thermometry, pyrometry, and for Elihu Thomson's experiments on electromagnetic repulsion, are included. A very useful series of physical tables is given at the end of the volume.

#### Miscellaneous.

(1) *The Schoolmasters Yearbook and Directory, 1911.* lxxxiv + 400 + 718 pp. (The Year Book Press, c/o Sonnenschein.) 12s. 6d. net.

(2) *The Public Schools Year Book, 1911.* Edited by H. F. W. Deane and W. A. Evans. xxii + 802 pp. (The Year Book Press, c/o Sonnenschein.) 3s. 6d. net.

It is difficult now to imagine educational work without a "Schoolmasters Yearbook." It has become indispensable, and is likely to remain so as long as the editor maintains the high standard for accuracy and completeness his efforts have secured. It is a very thorough reference book of English and Welsh secondary education, touching as it does upon every matter of importance. The editor modestly pleads for the annual purchase of the yearbook by every educational association; we should think no masters' common room should be without a copy of the annual issue of this invaluable directory.

(2) The "Public Schools Year Book" looks much more attractive this year in its new style of binding. An examination of its contents shows that the editors have spared no pains to bring its information up to date and to extend its usefulness. This twenty-second issue is certainly the best we have had.

*Test Papers for the Oxford and Cambridge Local Examinations.* (Pillans and Wilson.)—Teachers who are preparing junior and senior candidates for the University Local examinations will do well to examine these test papers. The subjects on which the test papers are published are arithmetic, history, English grammar and composition, geography; Latin grammar, composition, and unseens; French grammar, composition, and unseens; and mathematics. For the revision of previous work, and as a means of accustoming pupils to what is expected in a written answer, the questions will prove very useful.

## CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

## "Pages Choises de Dumas."

WHILE thanking your reviewer for his kindly criticism in your January number of "Pages Choises de Dumas," edited by Miss Templeton and published by the Oxford University Press in my Direct Method Series, I should be obliged if you would kindly give me an opportunity of replying to one or two of his remarks.

He says: "The vocabulary is practically complete. Each word is followed by its phonetic transcription, and here, too, great care has been taken to ensure correctness. Where phonetic printing is concerned a slip now and then is excusable; we have noticed very few, and those mostly affecting the quantity of vowels. To make the penultimate of *abuser*, *décourager*, *séparer*, *succéder* long may lead to faulty stress; in such cases it would be better\* to adopt the symbol for half-length. To make the second vowel of *paysan* long is, of course, a mistake."

Allow me to say in reply that the second vowel of *paysan* is given as long in the dictionary of Prof. Paul Passy and Herr Rektor Michaelis; but, not content with this, I wrote to Prof. Passy after reading your reviewer's remark, and in his reply he confirms the statement of his dictionary, though he adds that he himself generally pronounces the second vowel as short. As regards the other four words, the penultimate syllables are in each case given as long in Prof. Passy's dictionary. Your reviewer further says that in such cases it would be better to adopt the symbol for half-length; may I refer him to the English edition of Prof. Passy's "Sounds of the French Language," p. 43, in which it is stated: "We shall mark the half-long vowels by the same symbol as the long vowels, it being understood that this symbol only indicates half-length in weak syllables"? On the last page of the book noticed by your reviewer, the reader is specially referred to "The Sounds of the French Language."

I should be greatly obliged if you would kindly insert this reply in your next issue, as I have taken an enormous amount of trouble to ensure accuracy in the phonetic transcription.

D. L. SAVORY.

ON p. 43 of "The Sounds of the French Language" I find *tyran* transcribed with a short nasal vowel. In my edition of the Michaelis-Passy dictionary *paysan* is transcribed [peizā]. This is in accordance with the general rule given on p. 313 of the dictionary: "En syllabe finale ouverte, la voyelle est brève." The same statement is to be found on p. 43 of "The Sounds of the French Language."

I am fully aware that it is the custom in many books to distinguish only long and short quantity, no use being made of the sign for half-length. I venture to suggest that this is a pity in the case of such words as I have quoted. It is not quite correct to say that the dictionary gives the penultimate vowels in these words as long. From the remark on p. xiv of the Introduction it may be inferred that the *u* of *abuser*, being *protonique*, is half-long; *décourager* is transcribed with short *a*; in *séparer* one may at least infer that the *a* is intended to be half-long, and it is definitely indicated that the *a* of *séparé* is short, as it is marked with an asterisk, which shows that the *a* is *tout-à-fait abrégé* (Intro., p. xiv); *succéder* is

given with short penultimate. My edition of the dictionary is that of 1897; I am not aware that there is a more recent edition. In the singular present indicative these vowels appear in final closed syllables and are long, but in the infinitive the penultimate syllable is *protonique*, and in such positions "there are practically only short and half-long vowels," to quote again from "The Sounds of the French Language." The transcription which makes the syllables long may lead to their being stressed, a tendency to which English speakers are naturally very prone; the use of the sign for half-length might serve as a warning.

THE REVIEWER.

## Old Celtic Romances.

IN reviewing "Celtic Tales," by L. Chisholm (Jack), in the February number of THE SCHOOL WORLD you say: "Never since Joyce's 'Old Celtic Romances' went out of print have these beautiful tales been done so well for children." The book in question is surely *not out of print*. I have a third edition (bought a year ago), revised and enlarged, published by Messrs. Longmans, Green and Co. in 1907.

"The Children of Lir" cannot be told more beautifully than it is there, and other retelling seems unnecessary.

R. K. POLKINGHORNE.

"OLD CELTIC ROMANCES" was out of print for some time previous to 1907, and the fact was noted in this magazine. I quite agree that it is one of the most beautifully written Celtic books ever issued.

THE REVIEWER.

## Refractive Index of Liquids.

THE following cheap and simple method of determining the refractive index of liquids may be of interest to some of your readers, although it may not be new.

Take an ordinary medicine bottle and fill it with the liquid the refractive index of which is to be measured, corking it securely. Place it on a sheet of millimetre-squared paper, and trace rays of light through by the pin method, as for a glass block. The sides of the medicine bottle are plane and parallel enough for this experiment, and there is no difficulty in getting the pupils to bring suitable bottles of various sizes. The following are one student's results obtained by this method:

|                   |      |                   |      |
|-------------------|------|-------------------|------|
| Water             | 1'34 | Turpentine        | 1'44 |
| Methylated spirit | 1'37 | Carlin disulphide | 1'62 |

ARTHUR E. WHITE.

The Municipal Secondary School, St. George, Bristol.

## The School World.

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SIXPENCE.

## THE EDUCATION OF CHARLES DARWIN.

By CHARLES DAVISON, Sc.D., F.R.S.

DARWIN'S education has been often condemned, but by none more severely than by himself. He admitted no claim to having been "produced" by either school or university. Shrewsbury, as a means of education to him, "was simply a blank," and his time at Edinburgh and Cambridge "was wasted, as far as the academical studies were concerned," as completely as it was at school. Nor was Prof. Huxley less confident that all three institutions had alike failed in Darwin's case,<sup>1</sup> though he does not explain why a boy sent to Shrewsbury should receive other than the classical education then in vogue, or why a youth sent to Edinburgh to study medicine or to Cambridge to study theology should complain if he were not turned out a naturalist.

But is it quite certain that Darwin gained nothing whatever from his work at school, indirectly if not directly? If so, why did he send his eldest son to Rugby? Is it fair to blame the authorities of the two universities for their failure to detect the germs of the future naturalist? Should Sedgwick at Cambridge be censured because Jameson at Edinburgh appeared dull and was behind the times? Is it not just possible that Darwin's high spirits and sensitiveness, that a kind of passive resistance on his part, were responsible for the fact that his early education was less useful than it might have been to him in his after-life?

Darwin was born on February 12th, 1809. In the spring of 1817 he was sent to a day school at Shrewsbury, and in the summer of the following year to the grammar school, then under the guidance of Dr. Butler. Here he stayed for seven years, until the midsummer of 1825. "Nothing," he says, "could have been worse for the development of my mind than Dr. Butler's school, as it was strictly classical, nothing else being taught, except a little ancient geography and history. . . . Especial attention was paid to verse-making, and this I could never do well. . . . Much attention was paid to learning by heart the lessons of the previous day; this I could effect with great

facility, learning forty or fifty lines of Virgil or Homer, whilst I was in morning chapel; but this exercise was utterly useless, for every verse was forgotten in forty-eight hours. I was not idle, and with the exception of versification, generally worked conscientiously at my classics, not using cribs." Whilst he was at school, he studied Euclid with a private tutor, and made chemical experiments with his brother. He took pleasure in reading the poems of Thomson, Byron, and Scott, and would pore for hours over the historical plays of Shakespeare. It was during this period, also, that the wish first arose in him to travel in distant countries, that he became an enthusiastic collector of insects and an observer of the habits of birds, and, towards the latter part of it, that he became "passionately fond of shooting."

Leaving school at a rather earlier age than usual, he was sent to study medicine at Edinburgh University in October, 1825. "The instruction at Edinburgh was altogether by lectures, and these were intolerably dull, with the exception of those on chemistry by Hope." The lectures on *materia medica* at eight on a winter's morning were, even after the lapse of half a century, "something fearful to remember." Those on human anatomy were felt to be as dull as the professor himself. Besides going to lectures, Darwin attended regularly the clinical wards in the hospital. "I also attended on two occasions the operating theatre in the hospital at Edinburgh, and saw two very bad operations, one on a child, but I rushed away before they were completed. Nor did I ever attend again, for hardly any inducement would have been strong enough to make me do so; this being long before the blessed days of chloroform." During the second session, he went to Prof. Jameson's lectures on geology and zoology; but, he adds, "they were incredibly dull. The sole effect they produced on me was the determination never as long as I lived to read a book on Geology, or in any way study the science." The dullness of the professor of anatomy and the unpleasantness of anatomical work kept Darwin away from the dissecting room. That he was not urged to practise dissection he afterwards recognised as one of the greatest evils of his life. "I should soon," he says, "have got over my disgust; and the practice would have been

<sup>1</sup> "Collected Essays: II. Darwiniana," pp. 253-302.

invaluable for all my future work. This has been an irremediable evil, as well as my incapacity to draw."

It is evident that Darwin studied medicine in a half-hearted way. He realised about that time that his father would leave enough to support him, he disliked the dissecting room, and he dreaded the operating theatre. His father, seeing that the prospect of a physician's life was distasteful, suggested that he should become a clergyman; and, with this object in view, Darwin proceeded to Christ's College, Cambridge, in January, 1828. This was a term later than usual, but in the preceding two years he had forgotten most of the Latin and Greek that he had learned at school, and several months were required for its recovery.

At Cambridge he attempted mathematics, but was impatient at his inability to grasp the meaning of the early steps in algebra. The subject grew repugnant to him, and he gave it up—to his regret in after-life. He attended a few college lectures in classics, but the attendance was almost nominal. Little, clearly, was gained from the efforts of his tutors, and the fact that he passed the little-go and the final examination for the ordinary degree with some credit is to be attributed mainly to his private reading. At Cambridge, as at Edinburgh, Darwin owed most to the friendships won by his attractive personality. He soon became intimate with Henslow, the professor of botany. Though he did not study the subject, he attended some of Henslow's lectures, and liked them for their extreme clearness and admirable illustrations, and he also accompanied the class on field excursions to distant places. "But I was so sickened with lectures at Edinburgh," he remarks, "that I did not even attend Sedgwick's eloquent and interesting lectures. Had I done so I should probably have become a geologist earlier than I did." Darwin became acquainted also with other men of note older than himself—with Whewell, then professor of mineralogy, the Rev. Leonard Jenyns, the Rev. Richard Dawes (afterwards Dean of Hereford), and, but only at the end of his time, with Sedgwick. His craving for foreign travel was stimulated by reading Humboldt's "Personal Narrative," while his passion for collecting beetles was satisfied by many an excursion in the Fen country and elsewhere.

Darwin left Cambridge in June, 1831. In August, on the recommendation of Henslow, he accompanied Sedgwick in one of his celebrated investigations in North Wales. At the end of the month he returned to Staffordshire for shooting; "for at that time I should have thought myself mad to give up the first days of partridge-shooting for geology or any other science." It was then that he received through Henslow, and ultimately accepted, the invitation to accompany Captain Fitzroy on his voyage round the world—a voyage which lasted very nearly five years, and to which, as he writes half a century afterwards, he always felt that he owed the first real training or educa-

tion of his mind. With this voyage, however, we are not now concerned. His education, as it is ordinarily understood, was at an end. He was free to make the most of the habits of application ingrained at school, and of his enthusiasm and passionate love for collecting and observing which were innate and unfostered by those under whose tuition he had been placed.<sup>1</sup>

Was Darwin's time at school and university so entirely wasted that he could afterwards maintain that all that he had learned of any value had been self-taught? The total loss of seven years is a heavy charge to bring against any school. Whether the blame should rest with the school, with the parent who chose it, or with the system of education at the time which left little else to choose from, is not now a matter of any moment. The fact remains that, day after day for seven years, Darwin's life was spent in learning the grammars of two dead languages, in translating classical authors and learning selected passages in the original, and in the composition of Greek and Latin verse. A wretched system, he declares it in after-years to be, possessing no merits whatever. "No one," he writes in 1852, "can more truly despise the old stereotyped stupid classical education than I do."

It is not difficult to imagine the Darwin of 1818 to 1825. He was evidently a cheery lad, high-spirited, making many friends, and conscientious and high-principled beyond the wont of schoolboys. There was none of the slackness of the modern youth about Darwin, for he was keen and enthusiastic. He was so deeply interested in chemistry while at school that he often used to go on working until rather late at night. The clear geometrical proofs of Euclid gave him intense satisfaction, and the explanation of the principle of the vernier delighted him. His taste for angling was so strong that he "would sit for any number of hours on the bank of a river or pond watching the float." He had a passion for collecting insects, and collected minerals with much zeal. "In the latter part of my school life I became passionately fond of shooting. I do not believe," he adds, "that anyone could have shown more zeal for the most holy cause than I did for shooting birds."

Unfortunately, this keenness did not extend to the subjects which formed the school course. His mind seems to have dwelt, in school and out of school, on his favourite pursuits. His best side was turned away from his teachers, so that he succeeded in passing through school, from one form-master to another, without manifesting any sign of his unusual ability. "When I left the school," he says, "I was for my age neither high nor low in it; and I believe that I was considered by all my masters and by my father as a very ordinary boy, rather below the common standard in intellect."

Yet surely his work, which was done conscientiously, his translations that were made

<sup>1</sup> "The Life and Letters of Charles Darwin." Vol. i., pp. 27-58, 355, 381-387; vol. iii., p. 177.

without the aid of cribs, cannot have been useless. We may look in vain, perhaps, for any effect upon his style. Indeed, the difficulty which he experienced in writing a simple English sentence remained to the end. But the wrestling with many an obscure passage in Latin or Greek, the struggle to extort its meaning, must have strengthened his mind, even if the process took place unconsciously. Again, though in later life he depreciated his own memory, the power which he acquired of learning forty or fifty lines of Virgil or Homer during the short space of morning chapel must have been a valuable one. Every line may have been forgotten in forty-eight hours, and thus become useless in his own verse compositions; but the "barrister's memory" which he so acquired of collecting many data at once in his mind and forgetting them when no longer wanted must have been of service to him when afterwards marshalling large masses of facts for his great works.

These results, such as they are, cannot, of course, be placed in the balance against the general waste of time. They are not to be despised, but they might have been attained equally well in other and more profitable ways. The one great lesson Darwin learned at school arose from the compulsion to do unpleasant work. It is, perhaps, the chief lesson that can be learned at any school, the only discipline which some people experience in the course of their lives. Darwin was freed from the restraints of school at a somewhat early age. He had not the same inducements to work as his equally youthful fellow-students at Edinburgh; and, as the first results of his freedom, he allowed his own tastes and feelings to influence his attendance in the operating theatre and dissecting room. But the effects of the early restraints were by no means lost, and they seem to me to exhibit themselves often in later life—in, for instance, his determination to finish his long voyage when he was tempted on the coast of South America to shorten it, in the eight or nine years spent in the study of the *Cirrepedia*, but most of all in the twenty-two years' preparation for the "Origin of Species." "A boy," he wrote, "who has learnt to stick at Latin and conquer its difficulties, ought to be able to stick at any labour." And this was probably the reason why, after much hesitation, he sent his eldest son to Rugby.

If Darwin felt that his time at Shrewsbury was wasted, he soon came to the conclusion that the Edinburgh lectures were no change for the better. As regards the professor of anatomy, whose lectures were as dull as himself, Darwin's dislike seems to have been only too well founded. His lectures were approximately repetitions of those which his grandfather, who founded the medical school, had given before him. His own works, when he ventured to be original, have been described as confused, prolix, and illogical, his observations as imperfect, and his reading as superficial.<sup>1</sup> The professor of *materia medica*,

whose lectures were delivered at eight on winter mornings, and who himself often started work five hours earlier, was of a different type; and Darwin's recollections may have been tinged by the conditions of attendance. He had been elected without opposition to this chair, in which "he achieved great success. He would work indefatigably, always improving his lectures and studying every new publication in medicine, British and foreign."<sup>1</sup> In the case of Prof. Jameson, also, Darwin was apparently hasty in his dislike. "Jameson was a remarkable man," writes Prof. George Wilson. "Grave, taciturn, and reserved in manner . . . he seemed much better fitted for the secluded life of a student, than for the duties of a university chair. Nevertheless, there was in him a deep, quiet enthusiasm for his favourite science, which his ungeniality of nature could not prevent being contagious, and he became, what many of his brilliant colleagues failed to become, the founder of a school. The spectacle of his perseverance, earnestness, and lifelong devotion to his work overcame the effect of his taciturnity and reserve."<sup>2</sup>

At Cambridge the professoriate during Darwin's residence included some well-known names. Babbage and Airy occupied the mathematical chairs, Henslow was professor of botany, Sedgwick of geology, and Whewell of mineralogy. The chair of zoology was not then founded. A man reading for the ordinary degree, with the intention afterwards of taking holy orders, would not, as a rule, aspire to attendance at professors' lectures. But Darwin differed in one respect from the ordinary undergraduate. Having begun residence in January, 1828, he passed his final examination in January, 1831, and had to keep two more terms before taking his degree in the following June. It was then that Henslow persuaded him, in spite of his previous resolve, to take up the study of geology. Another man with Darwin's tastes, and with time enough and to spare, would naturally have sought the lectures of the eloquent Woodwardian professor, but Darwin was so "sickened" by his Edinburgh experiences that he refrained. The reason was a childish one, and the loss was more than Darwin's own. We know how much he gained from his brief training with Sedgwick in North Wales after the close of his Cambridge career. With fuller instruction from that inspiring teacher and a more intimate knowledge of the methods of investigation, it is probable that the admirable work which he accomplished on South American geology would have been still more varied and complete.

Darwin's experiences at Edinburgh and Cambridge were in one respect unfortunate. The course mapped out for him in each university was one for which he had little natural liking. Being able to satisfy his own innate tastes in other ways, being fond of sport, and having many congenial and high-spirited friends, the time

<sup>1</sup> "Dictionary of National Biography," vol. xvi., p. 163.

<sup>2</sup> G. Wilson and A. Geikie, "Memoir of Edward Forbes," pp. 108-9.

<sup>1</sup> "Dictionary of National Biography," vol. xxxviii., pp. 181-2.

passed pleasantly enough. But in shunning the dissecting rooms at Edinburgh, in throwing up his mathematical studies at Cambridge, and in neglecting Sedgwick's brilliant lectures, it must be admitted that he acted impulsively and unreasonably; and it would seem unfair to throw the blame on the university authorities for Darwin's failure to avail himself of the instruction which they had provided.

What Darwin's education would have been if he could have had the ordering of it himself, with his own future to guide him, can be told almost in his own words. There can be no doubt that he would have replaced one or both of the dead languages by French and German. Drawing would certainly have been included. Other subjects would have been introduced, if only to provide diversity, but he would have preferred those which exercise the observing and reasoning faculties, say, elementary science and geometry. He would, as already noted, have practised dissection. Nor would he have neglected the mere acquirement of general knowledge, such, I suppose, as is afforded by the early study of history and geography. In mathematics, he would have gone far enough to understand at least something of the great leading principles, "for men thus endowed seem to have an extra sense." There may be some doubt as to whether these principles would have been of the use that he anticipated; but there can be none as to the value of the other training. The difficulties encountered in mastering the German language would have provided in part the mental exercise for which the study of Latin and Greek has so long held a high place in our scheme of education. The knowledge of the language itself, the ability to translate it with ease, would have saved him many an hour of hard and weary labour. The power to draw with a fair approach to accuracy, and the attainment of some skill in dissecting, would have been of untold service in his future work. Nevertheless, it is open, I think, to doubt whether this training, which is now supplied on the modern side of every great school, is more effective to produce the men who do the world's work than the antiquated methods by which boys were taught to obey without question and to endure without complaint.

### SIMPLIFIED SPELLING.

By Prof. WALTER RIPPMMANN, M.A.

#### II.

**B**EFORE proceeding to consider how the spelling could be made more satisfactory, it is well to deal with the

#### OBJECTIONS TO ANY CHANGE IN THE SPELLING.

We instinctively shrink from any change in what is familiar; and what can be more familiar than the form of words that we have seen and written more times than we can possibly estimate? We take up a book printed in America, and *honor* and *center* jar upon us every time we come

across them; nay, even to see *forever* in place of *for ever* attracts our attention in an unpleasant way. But these are isolated cases; think of the many words that would have to be changed if any real improvement were to result. At the first glance a passage in any reformed spelling looks "queer" or "ugly." This objection is always the first to be made; it is perfectly natural; it is the hardest to remove. Indeed, its effect is not weakened until the new spelling is no longer new, until it has been seen often enough to be familiar.

The second objection often urged is that words which sound alike but have at present a different spelling would no longer be distinguishable, and confusion would arise. *Night* and *knight*, *right*, *write*, and *rite*, for instance, would have to be spelled in the same way. But what of that? After all, what is written should bear reading aloud. Are we uncertain in the spoken language whether *night* or *knight* is meant in any particular context? Could you make up sentences in which there would be ambiguity, in which, for instance, *right*, *write*, and *rite* would each give sense? Even in the language as it is now spelled cases of words identical in form but different in meaning are not rare; *art* may be a noun or a verb (*thou art*), *bound* may be an infinitive or a past tense, *bear* may be a noun or a verb. Further, there are cases in which the present spelling has identity of form, although there is difference of pronunciation (which in a consistent spelling would necessitate difference of form); e.g., *lead* (verb) and *lead* (noun), *row* (of houses) and *row* (quarrel), *read* (present) and *read* (past).

The answer, then, to this objection is that what gives no trouble in the spoken language cannot give trouble in its written form; and that if in one or two cases trouble arose, it would be counterbalanced by the avoidance of ambiguity in other cases.

The objection to which most weight is generally attached is the "etymological": a change of spelling would obscure the derivation. It might suffice to point to the fact that Prof. Skeat, whose supreme position among English scholars is universally recognised, has long been a champion of spelling reform; to many this will seem a sufficient answer. But there is so much misapprehension on this point, and such strange statements are made, that it becomes necessary to deal with this objection in some detail.

We require the language as an instrument; we may also study its history. The presence of unpronounced letters, three or four different ways of representing the same sound, three or four uses of the same letter: all this detracts from the value of a language as an instrument. When we place this instrument in the hand of the child, we do not at the same time teach it historical grammar.

Again, let us not forget who form the great majority of those that learn to read and write. They are the children that attend elementary



schools; their time is limited. We have no right to impose on them a chaotic spelling for the sake of possibly teaching them a little historical grammar.

But it may be said that it is misleading to speak in this connection of historical grammar; that it is the derivation that is obscured, and that this is a real loss. What is meant is, that it will become less easy to connect the English words with French or Latin words and with Teutonic words.

It must be borne in mind that the mass of the nation learns no foreign language, and the opportunities for comparison are wanting. But let us consider the quite appreciable number of those who know one or several foreign languages; will they not lose something if the connection between English and foreign words is obscured?

Our vocabulary has many elements; but in the main it consists of words of Teutonic origin and words which go back, directly or indirectly, to Latin. A large number of the derivatives from Latin (probably the great majority) present little difficulty; they have undergone comparatively little sound change since they entered the language. A reasonable simplified spelling would leave them, therefore, very much as they are now. (Thus, selecting words from this paragraph, there would be little or no change in the simplified spelling of *vocabulary*, *element*, *consist*, *origin*, *directly*, *derivative*, *probably*, *majority*; there would be no change calculated to obscure the derivation.)

The words that give trouble are the words of Teutonic origin. These (speaking quite generally) would require much more extensive changes in any scheme of simplified spelling. The *k* of *knave* would disappear, and the connection with the German *Knabe* would become less obvious; the omission of *gh* from *night* (by which I do not mean that the form adopted would be *nit*) makes the word less like *Nacht*. Undoubtedly there is a fair number of words that belong to this category.

Assuming that the obscuring of derivations went much farther than it is likely to do in any acceptable scheme of simplified spelling, does this represent a loss?

Before replying, it may be well to consider another objection which is often urged: the introduction of another spelling would make all the existing books useless. I am not quite clear why this objection should be so readily urged; for surely it is quite unreasonable. The introduction of a new spelling is not the work of days or weeks: it would be impossible (even if it were desirable) at once to supply in the new spelling all the books that are wanted, and to remove all the old books in the old spelling. At first only a small number of the most important books would be printed in the new way; and even when it came to be generally adopted for new books, we should still have all the old books in the old spelling. Everybody would be able to read the old

spelling without difficulty<sup>1</sup>; those brought up on the new spelling would be familiar with the old, though they would hardly look upon it with admiration.

To the learner interested in the history of the language the old spelling would be easily accessible; far more easily than the spelling of Chaucer or even of Shakespeare. He would be able to trace derivations quite as easily as now; and he would enjoy this great advantage, that he could not escape the sounds and deal with letters only—which is at present so serious a danger in the path of the young student of language. He would ask himself again and again why the old spelling (unlike the new) deviated so frequently from the pronunciation. What he now accepts without thinking he would analyse and examine. The study of philology is bound to gain great advantage when the spelling of a language is a fair representation of the sounds.

I have not yet directed attention to the fact that the present spelling is not always a safe guide in matters of derivation. Those who think that the spelling should not only represent the sounds, but also suggest the origin of the word, should certainly not continue to write with the present misleading spelling *scent*, *sovereign*, and many other words; and if a silent *b* is kept in *debt* "to show the derivation," why not insert a silent *c* in *lettuce* (from *lactuca*)? and if *ph* is kept in *philosophy* to show that the word comes from the Greek, why not be consistent and write *phancy*? A simplified spelling would give us *sent*, not *scent*, and would thus present a form etymologically as well as phonetically more correct; it would give us *det*, not *debt*, which again would be more correct, for the word is derived directly from French *dette*, and indirectly from Latin *debita*; and as for the *ph*, will it be maintained that the Italian who writes *filosofia* is on that account less likely than we are to know that the word is derived from the Greek?

To sum up the answer to the "etymological" objection. The language as an instrument would be improved by the adoption of a simplified spelling; for purposes of study the present spelling would still be abundantly available. The connection of form between English and French or Latin words would be very little obscured in the new spelling; words of Teutonic origin would have to be changed more, but the student comparing, let us say, English and German would be in no way inconvenienced. (Incidentally it may be remarked that at the present day the percentage of the nation capable of instituting such a comparison is deplorably small; the neglect of German deprives us of the key to the intellectual armoury of a nation from whom we could learn very much.)

The last objection that I have heard—and to my mind it hardly deserves mention—is that it is good discipline to make children learn such a spelling as ours. I should be the last to desire the

<sup>1</sup> I am assuming that the new spelling would be rational and practical, not an instrument of absolute precision with a multitude of new symbols.

weakening of will or the relaxing of effort in our schools; but I have no sympathy with the idea that difficulties have an intrinsic value. We do not teach children to write with their feet, because of the moral and intellectual advantages to be gained from overcoming difficulties. We teach them to grapple with difficulties because in the process certain valuable powers are being exercised—because there is some definite end to be attained when the difficulties are overcome. We give them practice in drawing deductions, in formulating rules, in applying them. What of all this is there in the teaching of the current spelling? We have to say: *b e d* spells *bed*, and *h e a d* spells *head*. If the child asks: why not *hed*? we can give no reason. There is no rule to guide the child. The sounds do not help. This is a difficulty for the child, and remains a difficulty until repetition has made the unreasonable spelling *head* familiar. What has been the gain? It would be hard to say; but the loss is obvious: time and effort have been spent which might have been better employed otherwise.

We are now in a position to consider various suggestions for improving the spelling. It is possible to write the language quite phonetically; or to retain the present spelling, using diacritics, duplicate symbols, &c., to indicate the pronunciation; or to simplify the present spelling. It is these three courses that I propose to consider.

#### PHONETIC SPELLING.

The principle of phonetic spelling is One Sound One Sign. That is the ideal form of writing. If the sounds have been heard correctly, they can be written down without hesitation; if the writing or printing is correct, the pronunciation of the reader is correct; that is to say, if the writer or reader knows each sound and the corresponding sign.

As our knowledge of phonetics increases, our sensitiveness to sounds becomes more acute. We distinguish more sounds and greater variety of sounds. As we become more scientific, we require a greater number of signs. For practical purposes, however, the number of signs needed to represent English, French, German, Spanish, or Latin<sup>1</sup> is not very great; they are soon learnt.

The application of phonetics to the teaching of modern languages is no longer a novelty; and most teachers who have had phonetic training regard the phonetic alphabet as a most valuable auxiliary. It enables the teacher readily to refer to a sign that unmistakably suggests the required sound. It makes sound drill easy. Before long it will be universal.

A phonetic alphabet is useful for designating the sounds of dialect speech, of the older stages of a language, or of the speech of uncultured races.

In the teaching of the mother tongue also it is

going to prove very valuable; not (I believe) at the first stage, but a little later—in the secondary school before the first foreign language is begun. It is then that the organs of speech specially require training, and the teaching of expressive reading at this age should always be supplemented by exercises in articulation. These will at the same time lead to better ear-training, the neglect of which has done much harm.<sup>1</sup>

For all these purposes I regard a purely phonetic alphabet as of the utmost value; but I do not believe that it can be recommended for general use in place of the present spelling, and for the following reasons:

A phonetic spelling necessarily contains a number of new symbols that are quite unfamiliar, and requires a number of old symbols to be used in an unfamiliar way. Its appearance is bound to be very "queer." Take any phonetic spelling you please, and observe its effect on the man in the street; he will not take to it at all kindly.

The phonetic alphabet is not easy to print or to write. The most practical and far the most widely used is that of the International Phonetic Association; although it presents less difficulty in this respect than any other with which I am acquainted, it is by no means easy to print. Still more troublesome is the writing of such an alphabet in the form of a connected script (*i.e.*, running the letters together).

A phonetic spelling must differ considerably from the present spelling; the transition from the changed spelling to the old spelling would give a good deal of trouble.

The most serious objection, however, is the absence of uniformity in English speech. We may regard Southern English as the standard; but there are also many speakers of Northern English and of American English. If we adopt a phonetic spelling we must decide in favour of one particular form for each word; that means, we must adopt a definite standard. What is that standard? If we spell phonetically in accordance with Southern English usage, will our friends across the border and across the ocean consent to speak as we do? Some day it may come to pass; but not soon. If we were to seek acceptance for a scheme of spelling which presupposed that all who adopted it should speak the English of a section (not even of a majority), we should quickly find that our efforts were wasted.

Even if it were decided to adopt Southern English, there would still remain the question: Which form of Southern English? The speech of the stage? It has never been standardised. The speech of an individual? Every individual has his own peculiarities. It has been suggested that the speech of Mr. Forbes Robertson should be taken as a model; for all I know, he may be the best existing speaker of English, as has been maintained. But is his speech the same in all

<sup>1</sup> I mention these languages because they are the chief languages taught in our schools, and because there are English text-books for the study of these languages with a phonetic transcription.

<sup>1</sup> It has been maintained that the early training in the use of the brush in connection with the teaching of writing has conduced to develop the artistic sense of the Japanese. Is it not possible that our neglect of ear-training has something to do with the often stated fact that the English, as a whole, are unmusical?

circumstances? Does he speak at the breakfast table in the same way as when he is Hamlet or Romeo? Presumably it is his speech as an actor that is recommended as a model. Are we within reasonable distance of persuading everyone to talk like this? I do not say that his speech will not be listened to with admiration wherever he may be acting; but there is a great difference between admiring another's speech and consenting to give up your own speech in its favour. I am inclined to think that something like uniformity, the general acceptance of a standard speech, is very desirable, and that we may be tending slowly in that direction; and I am sure that a good spelling would be likely to hasten the process. At present we are very, very far from that goal.

A difficulty sometimes urged, that as sound change still goes on, the phonetic spelling would have to change also and thus be unstable, does not appeal to me very much, because I believe that a phonetic alphabet would reduce the rate of sound change in a very remarkable way.

#### THE PRESENT SPELLING WITH DIACRITICS, &c.

Some there are who wish to keep the present spelling, but to indicate the pronunciation of the otherwise ambiguous letters. This may be done by means of diacritics; some dictionaries denote the pronunciation in this way. Or different forms of the same letter may be used; thus *s*, when it has the value of *z* (as in *easy*), might receive a prolongation of one end; when it has the value of *sh* (as in *sugar*) the other end might be prolonged, and both ends when it is sounded as in *leisure*. This is the method adopted by Mr. Robert Bridges in an article "On the Present State of English Pronunciation," contributed to the "Essays and Studies" recently published under the auspices of the English Association. A passage printed in his alphabet makes a pleasant, though certainly unfamiliar, impression; pleasant, because the shape of the letters is artistic. But if we imagine this type reduced in size, as would be necessary, for instance, in a newspaper, we realise that it would be quite impossible; and to write it would be laborious and slow work. This, however, is not the most serious objection to it. What really renders all systems of this kind useless is their complication; the task of the child would be rendered more burdensome, not lightened. What we want is simplification.

#### SIMPLIFIED SPELLING.

From what has gone before it may be inferred that the spelling should be of such a kind that the sounds of the spoken language suggest the letters to be used; that it is easy to read and to print; that there is little difficulty in passing from it to the reading of books in the present spelling. It should be no less acceptable to the speakers of Northern English and American or Australian English than to the speakers of Southern English. While not imposing uniformity of pronunciation, it should not stand in its way. There should be few rules and very few exceptions.

This was the problem that presented itself to Mr. William Archer and to me when we undertook to draw up a scheme of Simplified Spelling. The need of such a scheme we felt to be great. In the United States certain groups of simplifications have been recommended by the Simplified Spelling Board; lists of words in a simplified form have been issued. Certain American periodicals have adopted some of the proposed changes, others have made a more extensive use of them. It seemed to us that this method, however well adapted for the propaganda in the United States, was ill suited to our needs. Again and again, in our efforts to interest people in the question, we were asked: "What is to be the ultimate form of the language? We see the reasonableness of this or that set of changes, but these in themselves do not substantially lessen the difficulty of learning to spell. Many more simplifications must follow, and we want to know how far the change is to go." The problem as stated above had to be faced.

A scheme has now been drawn up which will in due course be published. It is not yet in its final stage; matters of detail will have to be settled by a conference. But taking it as a whole, it is much simpler than we originally thought possible. We feel sure that it fulfils the conditions that we had decided to observe.

It would be premature to give this scheme here; but it may be of interest to enumerate the hardest problems encountered, not all of which have been solved to our complete satisfaction. Perhaps for some of them no better solution will be found than ours.

What is to be the representation of the initial sound in *cat*, *kitten*; shall it be *c* or *k*? Is *x* to be retained where it now occurs, or only in the prefix *ex-*, or not at all? Is *qu* to be kept? How are we to deal with the consonant combination written *j* or *g* or *ge* or *dg* or *dge*? Are the two letters *ng* always to represent the sound in *sing*, and are we then to write *longger*, *thangk* (or *thangc*)? How are we to spell the *sh* sound in *motion*, *mission*, *ocean*?

How should the "long vowels" and diphthongs be represented? Shall it be by means of double letters, as in *seed*, *food*; or by means of an added *e* as in *cede*, *rude*? And if by double letters, which are we to select for the vowel sounds of *day*, *see*, *my*, *go*, *due*, *true*? It is here that the present spelling offers the greatest variety, and that a decision is most difficult. If among the questions involved there is one more difficult than the rest, it is the question how we should represent the vowel sounds in *due*, in *true* or *rude* or *food*, in *put* or *foot*, and in *but*, without diverging too widely from present usage.

We have considered our scheme from various points of view. We find that by its adoption the rules of accidence and word formation would also be simplified, sometimes to a considerable extent. The saving of space would not be great; but, at any rate, there is a slight saving. The scheme requires not a single sign that is not used in the

present spelling, and not a single diacritic. Spelling according to this scheme can be learned by an educated person in half an hour; by a child it could be acquired in a very short time. The transition to the present spelling is easy; very many words, indeed, remain unchanged.

How about the existing variety of pronunciation? The answer will best be made clear by an example. For the sound in *day* we suggest the digraph *ai* (except in certain cases where *a* is used, according to a simple rule), familiar in *aim*, *vain*, *paid*, *pail*, and many other words. In Southern English this is pronounced as a diphthong; educated speakers utter the sound phonetically indicated by [ei], but in inferior speech other diphthongs, with lower tongue positions, are used. In Northern English there is no diphthong, but a simple vowel. The letters *ai* of our scheme are not intended as a representation of the two sounds *a* and *i*, but might be called a compound sign, just as *th* in the present spelling does not stand for *t+h*, but for two sounds, the initial of *thing* (phonetically [θ]) and the initial of *this* (phonetically [ð]). Those who are accustomed to pronouncing *aim* with a diphthong will be free still to do so; others will prefer to treat *ai* as representing a simple vowel. It is clear then that *ai* is not adopted because it is phonetically accurate, but because we regard it as the most convenient way of writing what some pronounce in one way, others in another.

These articles will have done service if they induce the readers of THE SCHOOL WORLD to give thought to the problem of simplified spelling. We are on the eve of important developments, and it is earnestly to be desired that all who are interested in the question should join the Simplified Spelling Society, of which Mr. William Archer is the secretary; the offices are at 44, Great Russell Street, London, W.C. Among the life members of this society may be mentioned Sir Clifford Allbutt, Prof. Vernon Arnold, Rev. J. O. Bevan, Prof. Karl Breul, Prof. A. C. Brown, Sir Edward Clarke, Mr. Harold Cox, Prof. E. Dowden, Rev. Canon Duckworth, Dr. E. R. Edwards, Prof. O. Jespersen, Prof. Courtney Kenny, Prof. J. W. Mackail, Judge W. W. Morrow, Sir Frederick Pollock, Prof. J. P. Postgate, Sir Harry Reichel, Major Ronald Ross, Prof. W. W. Skeat, Prof. G. C. Moore Smith, Prof. W. J. Sollas, Prof. W. Somerville. Dr. Furnivall was the first hon. treasurer of the society. The members of the present committee include Prof. Gilbert Murray (president), Prof. A. S. Napier, Prof. H. C. K. Wyld, Mr. A. W. Pollard, and Dr. H. F. Heath. The Simplified Spelling Society will shortly undertake an active propaganda, and for this purpose it is desirable that its membership should be greatly increased. The subscription has been fixed so low (the minimum annual subscription is one shilling) that it will be no obstacle to the teachers to whom in particular I have addressed this appeal, which I earnestly hope will not fall on deaf ears.

## HOW TO ENLARGE A CHILD'S ENGLISH VOCABULARY.

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THE EXTENT OF A CHILD'S VOCABULARY.—According to Prof. Laurie, the range of language which the average child has up to the eighth year probably does not extend beyond two or three hundred words. Mr. Salisbury, of the State Normal School, Whitewater, U.S.A., puts the number higher; he says that the number of words a child of thirty-two months actually used amounted to 660 according to his own counting. Recent investigations have tended to show that the vocabulary of a child of three or four years of age amounts in many cases to 1,200 words. Prof. Max Müller, in his "Science of Language,"<sup>1</sup> says that adult labourers use only three or four hundred words; that a well-educated person who has been at a public school and university, and who reads the Bible, Shakespeare, the *Times*, and books of all kinds from Mudie's Library, seldom uses more than two or three thousand words in actual conversation. Shakespeare has 15,000, Milton 8,000.

There is considerable discrepancy between the above figures. The number of words, of course, varies with the child's associations, children of intelligent parents having a far more extensive vocabulary than those of illiterate families. Teachers will find it an interesting experiment to examine the extent of the vocabulary of some of the young children under their charge. It will be found that in the earliest stages of instruction words expressing *action* are used more frequently than words expressing *quality* or even *name-words*. This is as we might expect, for children are far more interested in actions than in objects. Hence narration is usually regarded as the best form of composition in the initial stages, description being reserved for a later period. Colour-words (i.e., descriptive epithets) will become part of the child's vocabulary after he has acquired the ability to describe certain easy actions with which life makes him familiar.

THREE TYPES OF VOCABULARY.—An examination of the extent of our own vocabularies will reveal the fact that they are far smaller than we imagined—too small, in fact, often to enable us to make ourselves clearly understood. So, too, it is with the child. The purpose of this article is to suggest some methods of enlarging the child's vocabulary. One of the essential duties the teacher of English has to perform is to increase the child's ideas, and with these his power to express those ideas. The latter is, of course, inseparable from the former, and in this connection the most important thing we have to bear in mind is the fact that every adult and every child with whom we have to deal in the secondary school has three vocabularies, not two, as is generally supposed. Not only has he a vocabulary which is at his

<sup>1</sup> Pp. 265, 267.

command when he is *speaking*, and another, slightly different, when he is *writing*, but he has a third type of vocabulary which is at his command when he is *reading*. He has, that is, three types of vocabulary, a speaking, a writing, and a reading vocabulary. The last is usually not taken into consideration. It is, however, the chief instrument at our disposal for the enlargement of vocabulary. It is the teacher's work to purify the speech and make this as dignified as possible, and so bridge the gulf between speaking and writing, which is really not so wide as most people imagine. An increase in the child's speaking vocabulary means a corresponding increase in his writing vocabulary. If, then, we would increase the child's vocabulary, both in speech and in writing, we must enable the child to use many of the words which he understands when he is reading, but which are not at his command at other times. When he reads a novel, again and again he meets with words perfectly intelligible to him, but not in his own speaking and writing vocabularies. The words are hovering near the borders of forgetfulness, yet through their frequent recurrence they are never quite forgotten. He has not fully come into possession of the words; he has an indistinct, mumbling knowledge thereof. Such partially strange words we must devise some plan of getting our children to use, for it is only by frequent use that they will become a real possession of the mind, a part of their vocabulary in the strict sense of the word.

#### METHODS OF ENLARGING THE VOCABULARY.—

Let us now examine some of the chief means at our disposal to fix these words in the child's mind.

(1) First, the child should be taught *the use of the dictionary*. He should not consult this so frequently that his interest in a book is destroyed, but he should continually look up words the meaning of which he does not know. If the child feels the word is frequently used in everyday speech or writing, he should make a note of it in a note-book, set aside for the purpose. Often the phrase in which it occurs, or the whole sentence, should be written down. In this way a list of fifty or sixty such words might be made each month and repeatedly revised, so that the boy may use them and realise that he is using them. Not too many words should be chosen, nor should the words as a rule be isolated. The teacher should find an opportunity of helping the child and looking through these to see that the words are not ill-chosen, but are ordinary, commonplace, good words. Every child above the age of eleven should have a small dictionary of his own, such as Macmillan's "New Modern Dictionary"; while every class-room should have a really good dictionary for purposes of reference.

(2) The child should be regularly required to *memorise striking prose passages as well as poetry*. He should copy out in his note-book not only all the pieces he commits to memory, but also such passages as especially appeal to him.

The pieces he learns should be his own choice, though the teacher must guide him and see that his selection is varied. The three types of composition, narrative, descriptive, and expository, should all be included. Novels, books of travel, essays, speeches, will all be drawn upon. Selections from good essays are well worth including in the syllabus of middle and upper forms. Bacon, Lamb, Emerson, Leigh Hunt, Hazlitt, and Stevenson will provide the boy not only with ideas, but also with a good model for the expression of such ideas. Such memorisation of notable passages is invaluable for the extension of vocabulary.

Apart from the passages memorised, other pieces should be occasionally read to the class to be reproduced. Exercises based on the piece read, but requiring originality of thought, should also be set, so that the child will have an opportunity of using the vocabulary he has acquired. Suppose, for example, the children have reproduced a description of Bagworthy Water from "Lorna Doone"; let them also describe any portion of a river or stream with which they are personally familiar.

(3) The *general reading* of the child is bound to enlarge his vocabulary. We should, therefore, see that he does read. The books read at home should be made the subject of conversation in school. However immethodical these conversations are, so long as they ensure wider reading by the children, they will be justified. Through the poetry lesson, too, the vocabulary is unconsciously increased. Such questions as: What words seem to you to be especially suitable? Are the words prettier than you would have used? What passages do you like best in the poem? Pick out any adjectives that strike you as particularly beautiful, and write sentences containing these—will tend to fix beautiful words in the mind so that they become a real possession of the child.

Verse composition by the children is also a valuable means of fixing beautiful words in the mind.

(4) Definite as well as incidental *word study* is another important factor in the enlargement of vocabulary. The language lessons in the initial stages will aim at familiarising the child with the correct forms of irregular verbs, the forms of plural nouns, and the like; in the later stages they will take the form of definite lessons on simile and metaphor, synonyms, transition of meaning in words, &c. The following are some typical exercises, which should be closely connected with the work in literature and composition:

(i) Explain by synonyms, definition, or use in sentences certain words selected from the literature read.

(ii) Write sentences containing the following adjectives, used both literally and metaphorically: dull, keen, narrow, high, cold, hollow, black.

(iii) Show by their use in sentences the difference between "glad" and "happy," "continuous" and "continual," "joyful" and "joyous."

(iv) Show by their use in sentences how the following words are used: dry, arid, moistureless, parched, sere.

(v) What metaphors are implied in the following words: disastrous, sanguine, phlegmatic, dilapidated.

(vi) Differentiate old, ancient, aged, antique, antiquated, venerable.

(vii) Trace the transition in meaning from the radical signification in the following words: fast, post, person, &c.

(viii) Expand certain selected metaphors into similes.

Numbers of similar questions are suggested in Nesfield's "Aids to the Study of English Composition." The type of question and the choice of words should be largely conditioned by the other English work. A separate period should be set aside for language work. Precision in the use of words is ensured by such exercises; a boy is made more exact and accurate in his choice of words and more discriminating in his use thereof. After he is made to grasp the radical significance and changes of meaning in a word, he will be able to use the word far more accurately and with greater confidence than without such knowledge. Such work fixes the word and the idea behind the word in the mind. The nice and discriminating refinements in the use of words are learned by careful reading, and come almost unconsciously. The teacher helps the child to this end through the detailed study of certain literary masterpieces.

A TYPICAL PIECE EXAMINED.—The following will illustrate the method suggested. The class have been recently reading at home Stevenson's "Prince Otto." This passage is part of the selection for careful examination:

Soon she had struggled to a certain hilltop, and saw before her the silent inflooding of the day. Out of the East it welled and whitened: the darkness trembled into light: and the stars were extinguished like the street-lamps of a human city. The whiteness brightened into silver: the silver warmed into gold, and the gold kindled into pure and living fire: and the face of the East was barred with elemental scarlet. The day drew its first long breath, steady and chill: and for leagues around the woods sighed and shivered. And then, at one bound, the sun had floated up; and her startled eyes received day's first arrow, and quailed under the buffet. On every side the shadows leaped from their ambush and fell prone. The day was come, plain and garish: and up the steep and solitary eastern heaven, the sun, victorious over his competitors, continued slowly and royally to mount.

Tennyson's "Tithonus" is read with the class during the same week, special attention being directed to the two descriptions of dawn: (1) "A soft air fans the cloud apart . . . And shakes the darkness into flakes of fire"; (2) "I used to watch . . . thy presence and thy portals." The following are the exercises set:

(i) Show that you understand the meaning of the following words by using them in sentences: welled, garish, quailed, extinguish, ambush, prone, solitary, mystic, kindle.

(ii) What words used by Tennyson and Stevenson seem to you to be particularly striking?

(iii) Distinguish between garish, dazzling, gaudy,

showy; lucid, bright, glimmering; gloom, darkness, blackness.

(iv) Use the following words both literally and metaphorically: blind, lucid, living.

(v) Expand the following metaphors into similes: the silent inflooding of the day; the shadows leaped from their ambush; the sun continued royally to mount.

The object of such exercises is to make the child so thoroughly familiar with the words that he is able to use them without the slightest effort.

Some subject should be set for composition based on the above passage. The class might be required, for example, to describe some dawn they had themselves observed, or they might be allowed to make the dawn the setting of a short story. They should put in their note-books certain striking words or phrases that appeal to them, and enter any passages describing the dawn that they have recently met with in their own reading.

Thus the dictionary and literature are the chief sources of a refined vocabulary. The child must be taught the proper use of the dictionary; he must read widely; he must memorise striking passages, and have regular and definite instruction in the use of words, if his vocabulary is to be effectively and consistently enlarged. He must, in short, be taught to use the words he meets with in his reading so that they become a real possession of the mind. To use a commercial metaphor, the words that are lying idle in his "mental bank" must be put into circulation.

#### THE NEW ARMY ENTRANCE EXAMINATIONS.

NEW regulations for admission to the Royal Military Academy and the Royal Military College by competitive literary examination are published, and will come into force a year hence, in April 1912.

At present a candidate must first give evidence of general education by passing one or other of a number of qualifying examinations. He is then entitled to sit for the competitive examination without risk of rejection for weakness in any particular subject. More than once, to the joy of the candidates if not entirely to the joy of their teachers, the candidates have (owing to the smallness of their number) been straightway admitted to Woolwich and Sandhurst without competition.

After the date named these separate examinations will be merged into one, which will be at once qualifying and competitive. Much discussion has taken place on the relative merits of the two systems. In theory there is much to be said for requiring a good general education before a boy is allowed to specialise. In practice, however, that system has serious drawbacks, especially when one examination follows on the heels of the other, and, the two examinations being held by different authorities and on different lines, the school has to attempt to meet the requirements of both authorities at once. In any case, the

Army Council has now elected for the simpler and more expeditious method of one combined examination.

#### WOOLWICH.

For admission to Woolwich a candidate will in future have to take up English, English history and geography, a modern language, mathematics up to mechanics, and science. He may also offer a second language or higher mathematics, and also freehand drawing. Masters and boys will welcome the condition now imposed on drawing, which makes it useless for the boy with no aptitude for drawing to take up the subject.

In making mathematics and science compulsory for Woolwich the Army Council is following the best traditions of other great nations. The professions of the sapper and gunner are now seriously scientific, and it is necessary that the cadet should have the requisite scientific turn. To require certain mathematico-scientific knowledge as well as ability will enable all the cadets to begin their professional studies from the same point. At present the Woolwich staff have a serious difficulty to contend with in the "tail" of cadets who know little mathematics and no science.

The increasing scientific outfit necessary for the officers of our Army is further recognised in the extension of the course of study by a term; this extension being made at the College as well as at the Academy. In consequence of this, if the age of first commission is to remain unaltered, the age of transference from school to the military institutions must be lowered. For the present only the lower age-limit is reduced, being fixed at 16½ for Woolwich and 17 for Sandhurst. The upper limit remains for the present at 19½ for both institutions, but will be reduced later.

This lowering of the age of entry will be highly inconvenient to the schools. On the other hand, it must be remembered that only the admiration of the War Office for the training of character which the public school gives explains the greatness of the new age of entry. It is said in some quarters that in order to secure thorough equipment of the cadets at the age of first commission, the Army Council may in future be compelled to admit cadets at an age which will leave no time for a public-school training.

#### SANDHURST.

The list of subjects compulsory for admission to Sandhurst is shorter than the Woolwich list by the omission of mechanics and science. These two subjects are placed among the options, two of which may be offered. As the optional list includes Latin and Greek, Sandhurst will be possible for the classical boy who decides on the Army at the eleventh hour.

The lower degree of professional knowledge necessary in line regiments makes possible the relatively great range of choice of subjects for entrance to Sandhurst. Moreover, an Army is of less importance to us than to our Continental

neighbours. It is, however, inevitable that in time the College and its entrance examination should take a more scientific turn.

#### SELECTION BY INTERVIEW.

A new departure is made in the decision to admit a certain number of cadets to the College without literary examination. This is an experiment which will be watched with interest by many bodies concerned in making appointments. The system of selection by competitive literary examination has recently been much criticised. The case against the system was well put by Mr. Hartog in a recent lecture before the Society of Arts, reported in the March issue of *THE SCHOOL WORLD*. For many positions certain personal qualities, which cannot be tested by literary examination, are of great importance. For the Army the power of managing men is of the highest consequence. It is proposed to receive recommendations from the headmasters of selected schools. The boys recommended will be interviewed at the War Office, and if found satisfactory will be straightway admitted to Sandhurst.

The experiment is interesting and should in many ways give satisfactory results if the several authorities to whose hands the matter is entrusted take their responsibilities seriously. A doubt occurs whether these cadets will be able to hold their own with those appointed by competition, and pass the College examinations.

#### PRIZE CADETSHIPS.

In order to attract candidates of good ability but limited means a system of prize cadetships is instituted, which will for the holders of these cadetships reduce the expense of the College course. It is to be hoped that simultaneous action will be taken towards an increase of pay to officers of the Army, or towards a reduction of their inevitable expenses. For otherwise it is a doubtful kindness to attract into the Service a boy of limited means. As things stand, to live even as a bachelor in the cheapest regiments requires a private income of a hundred a year.

#### SUPERANNUATION IN SCOTLAND.

THE scheme for the superannuation of Scottish teachers foreshadowed in the Education (Scotland) Act of 1908 has now been issued in draft form. Some time, however, must elapse before it can become law. In the first place, three months are allowed during which objections may be offered by interested parties. Thereafter the Department has to consider the objections and suggestions lodged, and frame the scheme in its final form for presentation to both Houses of Parliament. There it has to be under review for a period of three months, and provided no motion is carried in opposition to its clauses, the scheme by Order in Council will become operative on a given date.

It may be said at once that the scheme confers very considerable benefits upon teachers, and goes



a long way towards placing their retiring allowances on a scale commensurate with the importance of the work upon which they are engaged. The cardinal feature in the scheme is that it is on a national basis, being aided and administered by the central authority and being applicable to all grades and classes of teachers, elementary, secondary, and specialist.

The recent adoption of sectional pension schemes for London and other large centres has, it is to be feared, given the death-blow to the ideal of a national pension scheme for the whole of England. While these schemes benefit the individual teachers concerned, they prejudice the interests of the profession as a whole and threaten the educational efficiency of the schools by stopping the free circulation of teachers. The policy of the local authorities concerned has been altogether praiseworthy. Despairing of action on the part of the Board of Education, they have sought to relieve an intolerable situation for a large number of their teachers by taking independent action on their own account. For the consequences to national education of this policy the Board of Education, and not they, must be held responsible.

**THE SUPERANNUATION ACT OF 1898.**—The Scotch Education Department has always had as its objective a national pension scheme, and was by no means favourable to the inclusion of Scotland in the provisions of the Superannuation Act of 1898. The new scheme, unlike that of the London County Council, breaks entirely with the existing pension scheme, and the Treasury is to pay into the new pension fund a sum equivalent to its present payments on behalf of Scottish teachers. The interests of contributors under the 1898 Act are, however, fully conserved. On reaching the age of retirement—sixty-five—they will receive, in addition to the retirement allowance under the new scheme, the deferred annuity from the payments which they have already made. They will not, of course, receive the Government contribution of 10s. for each year of service, but they will rank for that time under the new pensions terms, which are much more favourable.

**THE PENSION FUND.**—The pension fund is made up from four sources:

(1) Teachers' contributions—4 per cent. of the salary in the case of men, and  $3\frac{1}{2}$  per cent. of the salary in the case of women, to be contributed annually. School managers, however, may pay the teachers' contributions if they please. This provision is naturally not favourably regarded by managers. They fear, and not without good cause, that they will be called upon in the near future to bear the whole burden of the pension scheme.

(2) School Boards' and managers' contribution: 2 per cent. of the salary of each teacher to be paid annually.

(3) The Department's contribution: In the case of existing teachers, 4 per cent. of the salary for men, and  $3\frac{1}{2}$  per cent. for women, is to be paid into the pension fund from the Education (Scot-

land) Fund. For future teachers the figures are  $3\frac{1}{2}$  per cent. and  $3\frac{1}{2}$  per cent. respectively.

(4) A further contribution from the Department to meet retiring allowances paid in respect of service before the commencement of the scheme.

The Department's contribution is thus seen to be liberal, and is considerably higher than was anticipated at the passing of the Education Act of 1908. The total pension contributions come to almost 10 per cent. of the entire salaries of the teaching staff.

**BENEFITS UNDER THE SCHEME.**—What, then, are the benefits that are to be derived from contributions on so generous a scale? To many they will seem less than might reasonably be expected. But the scheme is based on actuarial investigation, and actuaries are prone to overestimate the cost of any scheme, as was notoriously the case in regard to the Superannuation Act of 1898. Provision is made for a valuation of the fund every five years, and teachers may fairly count on part, at least, of any future surplus going towards reducing their contributions or increasing their benefits.

The retiring allowance is fixed at  $\frac{1}{80}$ th of the teacher's average salary for the last five years of service multiplied by the number of years of service up to forty years. Thus, a master with £400 final salary and forty years' service will be entitled to a pension of  $\frac{1}{80}$ th of £400  $\times$  40 = £200. A mistress with a salary of £200 will similarly be entitled to a pension of £100.

In the case of existing teachers the retiring allowance for the years *before* the commencement of the scheme will be at the rate of  $\frac{1}{100}$ th of the average salary for the last five years multiplied by the number of such years, and at the rate of  $\frac{1}{80}$ th for years *after* the scheme.

**Illustration.**—A has twenty years' service *before* the scheme becomes operative and twenty years *after*. His average salary for the last five years is £240. His retiring allowance will be  $\frac{1}{100}$ th of £240  $\times$  20 +  $\frac{1}{80}$ th of £240  $\times$  20 = £108. Similarly, a teacher with a final salary of £400 and thirty years' service *before* the scheme and ten years *after*, would be entitled to a pension of  $\frac{1}{100}$ th of £400  $\times$  30 +  $\frac{1}{80}$ th of £400  $\times$  10 = £170.

**AGE LIMIT.**—The normal retiring age is sixty-five, but a teacher electing to retire at sixty, or at any time thereafter, may receive a full-time pension if he has forty years of service. "On the application of managers, and for good cause shown," the Department may continue an existing teacher in office beyond sixty-five. Future teachers, however, have no option but to go at the prescribed age.

**RETURN OF TEACHERS' PAYMENTS.**—If a teacher die in service, his representatives will receive back all the contributions which he paid into the pension fund, and if, having retired, he dies before receiving an amount equal to his contributions, the balance will be paid over to his representatives. If a teacher withdraws from the profession he or she is entitled to receive back, without

interest, the contributions paid in. This is a most important provision in a scheme affecting so many women. In no case will the contributions be lost, so that the scheme is thus a form of compulsory thrift. Teachers of ten years' service and upwards who withdraw from active service and do not claim the return of their contributions will, on attaining the age of sixty-five, be entitled to a pension calculated on the basis of 1/80th for each year of service.

**BREAKDOWN ALLOWANCE.**—If a teacher has served at least ten years, and becomes, owing to ill-health, permanently incapable of doing efficient service, he will receive a pension of the normal basis. But if he is compelled to retire before serving ten years he will not be entitled to a pension, but his contributions will be returned. In the case of teachers who are at present under the existing superannuation scheme, provision is made to retain for them the benefits of the breakdown clauses of the old scheme, viz., for men £20 for ten completed years of service, with the addition of £1 for each additional year, and for women, £15 for ten years' service and 13s. 4d. for each additional year.

The new Scottish scheme challenges comparison with that recently instituted by the London County Council. Both are compulsory, and applicable to all grades and classes of teachers. Both are on a "money returnable basis," though in the case of London the money is returned with 3 per cent. interest. The Scottish scheme allows of retirement on full salary at sixty, calculates the pension on the average salary of the last five years, and makes no demands in the way of back-payments for years prior to the scheme coming into force. The London scheme, on the other hand, makes sixty-five the retiring age, calculates the pension on the average salary throughout the whole length of service, and requires back-payments of premium for the past years that are allowed to count as service. The pensionable portion is, however, distinctly higher in London, viz., 1/60th, as against 1/80th, and the maximum allowance is also *nominally* greater, being 40/60ths, compared with 40/80ths. It will probably be found, however, that 40/80ths of the average salary for the last five years will give a better pension return than 40/60ths of the average salary for the whole period of service.

Such, then, are the provisions of the new Superannuation (Scotland) Scheme, which may fairly claim to be the first in the United Kingdom to be framed on broad and just lines, calling in as contributors all interested parties, the central authority, the local authority, and teachers themselves. The estimated cost is much greater than was anticipated, but when the interests of education are concerned, it is believed that all the parties in question will respond to the demands made upon them.

The one grave defect in the Bill is that it does nothing to improve the pension conditions of teachers with small salaries. The provision in the scheme of a minimum pension for all such

teachers would go far to meet the necessities of the case, but the real remedy is to be found by augmenting the miserable pittance paid as salary in many outlying districts. To this question teachers' organisations should give their early and serious attention.

For convenience the principal features of the scheme are here summarised:

(i) Scheme to be compulsory and to apply to all full-time teachers in elementary and secondary schools.

(ii) Maximum benefit to be half the average salary for the last five years of service.

(iii) Teachers' contributions to be: 4 per cent. men, 3½ per cent. women.

(iv) The school managers and the Department to contribute, in addition, 2 per cent. and 4 per cent. of salaries respectively.

(v) Optional age of retiral, sixty; compulsory age, sixty-five.

(vi) Teachers' contributions to be returned (without interest) if they do not qualify for a pension.

(vii) Breakdown allowance granted after ten years' service.

(viii) The Superannuation Act of 1898 lapses on the new scheme coming into operation.

## THE PURSUIT OF KNOWLEDGE.

By Prof. R. A. GREGORY.

### II.—SCIENCE AND AVIATION.

THE so-called "practical man" rarely has any sympathy with the methods of exact science, and often thinks that inventional and structural progress owes little to them. This is particularly the case with engineers and others who have taken part in the great developments of aviation during the past few years. Flying machines of various types have been constructed, and remarkable flights have been accomplished, though the designers have had to work by rule-of-thumb methods, and the airmen have required alertness of mind and body rather than mathematical knowledge of conditions of stability. It is certainly true that aviation engineers have not had many scientific principles to guide them; and the only satisfactory way to determine such principles is by experiment and calculations based upon the results. The possibilities of artificial flight were studied experimentally by a man of science at a time when anyone who gave attention to the subject received nothing but derision for his pains. Modern aviation was based upon the results he obtained, for he himself first showed that a system of planes could be sustained in the air if made to advance through it fast enough. As a skater can glide over very thin ice without breaking it, if his speed be sufficient, so an aeroplane can be kept from falling by driving it rapidly onward. In its quality of fleetness, it may be compared with Vergil's swift-footed virgin warrior, Camilla:

Swift Camilla scours the plain,

Flies o'er the unbending corn, and skims along the main.

It is scarcely too much to say that there would be no flying machines to-day if scientific experiment had not first proved the practicability of artificial flight. Until a few years ago, very little was known of the resistance offered to air by a body advancing through it. Sir Isaac Newton considered the subject, and came to the conclusion that the resistance opposed to a thing in rapid motion would be so great that enormous mechanical power would be required if artificial flight were to be accomplished. It was not a practical engineer or an aviator who undertook experiments to test the rule which Newton gave to calculate this power, but an American man of science—Samuel Pierpont Langley, secretary of the Smithsonian Institution at Washington.

Prof. Langley commenced his experiments in 1887; and his work gave, for the first time, some accurate knowledge as to the resistance offered to planes moving through air at different speeds and inclinations. He proved that what had been called the Newtonian Law was wrong; and that it takes less power to support a plane moving through air at high speed than at low. By simply moving a given weight fast enough in a horizontal plane, Langley found that it was possible to sustain the weight with less than one-twentieth the power demanded by Newton's rule. His conclusion as to the relation of speed to power for a body in motion in air was as follows:

These new experiments (and theory also when viewed in their light) show that if in such aerial motion there be given a plane of fixed size and weight inclined at such an angle and moved forward at such a speed that it shall be sustained in horizontal flight, then the more rapid the motion is, the less will be the power required to support and advance it.

This rule, now known as Langley's Law, represented a definite advance of knowledge secured by the methods of exact science. The "practical men" who, in these days of rapid locomotion, might have been expected to investigate the laws of air resistance, left it to a man of science to prove that a rule which had been accepted for two hundred years was incorrect. Previous to Langley's work, it had been supposed that artificial flight was impracticable because of the enormous mechanical power which would be required to sustain an aeroplane in motion through the air. His experiments demonstrated that relatively little power was needed to sustain a given weight if the horizontal velocity reached a certain rate. All that was needed in order to make mechanical flight possible was a light motor capable of forcing a plane or set of planes through the air with sufficient velocity.

Guided by his results Langley had a model aeroplane constructed, weighing about 25 lb., and successful flights, each about half a mile in length, were made with it in 1896. His experiments were regarded, however, as the trivial amusements of a scientific man; and when later trials of model aeroplanes failed to realise public expectation so much ridicule was thrown upon the attempts that he abandoned the subject and devoted

himself to other things. But he never lost faith or confidence in the ultimate possibility of aerial flight with heavier-than-air machines similar to his models. Concluding an account of his experiments in 1897, he said:

I have brought to a close the portion of the work which seemed to be specially mine—the demonstration of the practicability of mechanical flight—and for the next stage, which is the commercial and practical development of the idea, it is probable that the world may look to others. The world, indeed, will be supine if it does not realise that a new possibility has come to it, and that the great universal highway overhead is now soon to be opened.

How completely Langley's belief in flight by aeroplanes has been justified is known now to everyone, though his experiments are rarely mentioned. Faraday once said, referring to the electric dynamo, "I gave you this machine as an infant; you bring it back as a giant." Had Langley lived, the same remark could have been applied appropriately by him to the development of flying machines from his models. Purely scientific investigations gave the world the dynamo, and with the construction of this means of producing electricity there commenced a new era in engineering. In like manner, the work of a man of science opened a new epoch in the history of aerial navigation.

It is necessary to distinguish between the sustained or dynamic flight proved to be possible by Langley's demonstrations with models and the soaring or gliding flight accomplished without the use of power. About the same time that Langley was making his experiments, Otto Lilienthal, in Germany, and Percy Pilcher, in Scotland, were successful in producing man-carrying gliders, by means of which they could soar in the air for a hundred yards or so, after taking a short run against the wind, along the top of a hill or mound. Their work deserves the highest praise; and their memory is honoured not only on account of it, but also because they laid down their lives for it. Similar gliding or soaring flights were made by Mr. Octave Chanute, in the United States, with machines of different design, but in none of these cases was a motor used to drive the wings of the aeroplane against the air, and thus maintain it from falling earthward. When, in May, 1896, Langley's power-driven model aeroplane flew over the Potomac River for a minute and a half (for which time only it was provided with fuel and water), and accomplished a flight of little over half a mile before it settled down upon the water with a gentle descent, the possibility of dynamic flight was established for the first time. It was Langley, and no one else, who was the father of modern aeroplaning, both on account of his investigations of the scientific principles of air resistance and the work of the wind, and because he put the principles into practice by constructing a self-balancing heavier-than-air machine which would sustain itself in the air so long as the power driving it lasted.

When Wilbur and Orville Wright commenced their experiments in artificial flight, the only exact

information they could find as to the resistance of the air to machines driven at different velocities were those made by the man of science, S. P. Langley. They were the pioneers of sustained flight with aeroplanes, and they have acknowledged that their confidence in the practical solution of the problem was derived from Langley and his work.

The knowledge (they said) that the head of the most prominent scientific institution of America believed in the possibility of human flight was one of the influences that led us to undertake the preliminary investigations that preceded our active work. He recommended to us the books which enabled us to form sane ideas at the outset. It was a helping hand at a critical time, and we shall always be grateful.

Since the Brothers Wright accomplished their first flights with mechanically-driven aeroplanes, substantial improvements have been made in the structure of flying machines and in the engines which force them into the air. Encouraged by munificent money prizes, and by the publicity given to the making or breaking of "records," practical engineers turned their attention to aviation, and adventurous airmen trusted to chance and dexterity to drive their machines to triumphal heights and distances. Progress has often been made by the trial-and-error methods which have been followed; but in the case of aviation, the error has involved the melancholy sacrifice of many promising lives. Little is known of the basic scientific principles which should determine the structure of the most efficient type of flying machine, and little encouragement has been given to theoretical studies which will determine that type. Whatever progress has been made has been achieved by empirical methods, which in the absence of exact knowledge, are the only methods available, though they are expensive and wasteful.

Rich rewards are offered for every conceivable attainment in actual flight; but there are no prizes for the mathematician or other scientific investigator who, by calculation or experiment, will advance the solution of the difficult problems connected with the construction of aeroplanes. Engineers may assert that science and mathematics have rendered scant service to the development of aviation; but let them ask whether there has been sufficient inducement, except that offered by the pursuit of knowledge for its own sake, for scientific men to devote themselves to experimental and theoretical studies of the subject. Popular applause and valuable prizes are given (and rightly so) to the aviator whose daring and dexterity enable him to establish another record in the conquest of the air. Yet, while we applaud the practical achievement, let us not forget that it was scientific experiment which originated all aeroplanes; and that work in the laboratory and study must eventually determine the lines upon which a flying machine can be designed that may be launched into the air with as much confidence in its safety and stability as a vessel can be trusted to leave the slips of the dockyard in which it has been built.

## CURRENT GEOGRAPHICAL NOTES.

By E. R. WETHEY, M.A., F.R.G.S.

Grammar School, Bradford.

### The Westralian Difficulty.

PROF. J. W. GREGORY, F.R.S., who was from 1900 to 1904 professor of geology and mineralogy at Melbourne University, and is one of our foremost experts on all geographical questions connected with Australia, has been opening the eyes of the quidnuncs with regard to West Australia. The ordinary notion of this huge piece of the British Empire—all but a million square miles in area—is that it consists of a fair coast-line, here and there; a fine fertile district in the north, Kimberley; and all the rest desert, desert, desert. In short, unless he be after gold-mining, the would-be immigrant had better be careful ere he enter a land which is no land, where water, the prime necessity of life, is, except at ruinous cost, practically unattainable. And the story of these desert conditions of the interior has been told on unimpeachable authority, that of practical men who have been there. Water nowhere; on the other hand, countless ridges of sand, acre after acre of spinifex:

I will sing you a lay of W. A.

Of a wanderer, travelled and tanned

By the sun's fierce ray, through the livelong day

In the Spinifex and Sand—

rhymed David Carnegie in his wonderful book "Spinifex and Sand," published so long ago as 1898, but well worth reading to-day as a record of British pluck and doggedness. The experience of the Coolgardie pioneers in 1891 and 1892 was unique. Their water was carted to them from a "rock-hole" some thirty-six miles off, and on its arrival by horse wagon or camel caravan was retailed at 1s. to 2s. 6d. the gallon. The advent of the water team was as anxiously awaited as the arrival of the mail. The supply, too, was always giving out; washing was an unheard of luxury; there was barely enough to drink. To preserve these rock-holes, or "soaks," was a laborious and expensive task. They were usually found at the base of granite rocks, and were seldom more than 15 feet down. They were not springs, but merely collected water, and therefore never of lasting duration, though a good "soak" would often stand a few months' heavy drain. Before the railway was made, the route from York to Coolgardie was only kept open by diligent work on the "soaks," and by the building of "tanks" in these granite catchment areas. Twelve such tanks between Southern Cross and Coolgardie cost £30,000 to erect, and provided water at a cost of some £2,000 to £3,000 per million gallons. All these have, of course, been superseded by the scheme of Sir J. Forrest, which since 1903 has brought water from the Perth district to the centre of the goldfields. But it was a gigantic effort. The water was pumped up from the River Helena at Mandaring,



25 miles from Perth and 320 feet above sea-level. Thence it was driven through a 30-inch pipe over mountains 1,500 feet high to Coolgardie, 1,400 feet up and 325 miles away, and Kalgurli, some 200 feet lower and 25 miles further on. And the cost was reckoned at £2,500,000. It is expensive work opening up a new country at any time, and Australia in its early days appeared almost hopeless.

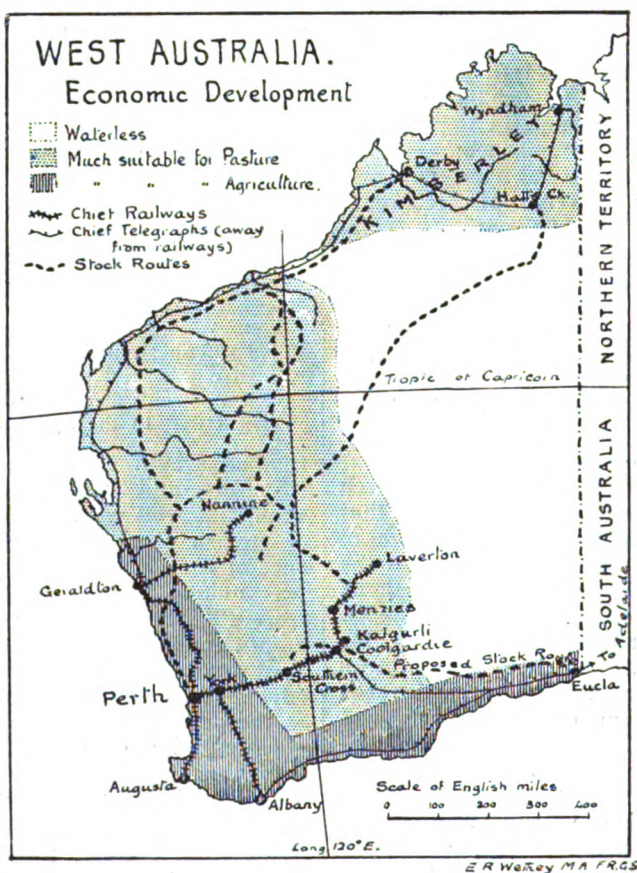
### Advance, Westralia!

But much knowledge has come to hand about the hinterlands of this wonderful colony since the early 'nineties of the Coolgardie era, and even since the first few years of the twentieth century. After all, it was the unknown once more which masqueraded for the magnificent—this time in the matter of aridity. Prof. Gregory asserts that everywhere there is a huge area of subterranean fresh water (the pioneers found plenty of water in places, but always salt), and that there exist many places where this water is easily tapped. Less than a hundred miles north of Coolgardie itself fresh-water wells have been found. It is not likely that the interior of West Australia will ever be an Eldorado for agriculturists. There is not sufficient water for irrigation. But for stock-raising, on the other hand, there appears to be plenty. In fact, the colony may be roughly divided into four districts, of which two are fit for pastoral settlers, and one for corn and fruit growers. The fourth is *tabu* at present. It is desert.

The annexed map is compiled from one put before the Royal Geographical Society by Prof. Gregory last year, and published in the *Geographical Journal* (vol. xxxv., no. 6). It shows these four districts, and the chief railway and telegraph communications in each. It embodies one aspect of current economic geography in Westralia which will undoubtedly have important consequences. A stock-raising people requires con-

venient routes for transport, and—especially in the absence of railways—water is obviously a prime necessity. The great difficulty in Westralia has always been to find routes which were not blocked by miles and miles of absolute desert. At the time of Carnegie's expedition (1892-6) not a single suitable route was known. There are several now. The chief are shown on the map. Even on the most trying one of all, i.e., that from the Laverton and Menzies gold districts to Hall's Creek, there are wells at intervals of fifteen to twenty miles. More will follow. Just to the south of this last station is a terrible country. Sidney

Weston, travelling here in 1908-9, found it totally devoid of surface water. On one stretch of nearly 500 miles only one small native well was found, which, on being cleaned out, was made to yield fifty gallons in twenty-four hours. The "cleaning-out" was necessary, if the well was after the fashion of the usual native treasure-house; hours of digging in the sand produce a thin trickle of thick scum, which turns tea black and smells curiously of a mixture of birds, lizards, rotting vegetation, and aborigines! But even here it was not absolutely hopeless, for there were plenty of eucalyptus trees on which camels could feed. Away to the south there is every probability of success in the proposed stock route from Coolgardie to Eucla.



West Australia.

West Australia, indeed, has a great future ahead. There is no doubt as to its mineral wealth. If it can raise stock as well, it has California and Victoria in front of it as examples of what a country which starts purely and simply as a goldfield may achieve. Put into statistical form, gold is already responsible for a wonderful advance. In the pairs of figures that follow, the first of the pair stands for the year 1890 (the year before Coolgardie), and the second for the present time:

|                        |     |          |     |            |
|------------------------|-----|----------|-----|------------|
| Population             | ... | 46,000   | ... | 300,000    |
| Savings Banks Deposits | ... | £34,000  | ... | £3,000,000 |
| Revenue                | ... | £400,000 | ... | £4,000,000 |

|  |            |                       |
|--|------------|-----------------------|
| Railways ...                               | 188 miles  | 3,000 miles           |
| Shipping tonnage (entered and cleared) ... | 900,000    | 4,000,000             |
| Crops (acres) ...                          | 74,000     | 500,000 (wheat alone) |
| Live stock, head ...                       | 2,700,000  | 6,000,000             |
| Wool, lbs. ...                             | 7,000,000  | 20,000,000            |
| Imports and exports ...                    | £1,500,000 | £15,000,000           |
| Gold output value ...                      | £86,000    | £7,000,000            |

And all this from the tiny beginnings of Arthur Bayley at Coolgardie in 1891, and Pat Hannan at Kalgurli a year later. For it is mining that has been the most influential and successful pioneer of industry, not only in West Australia, but throughout the whole island continent.

## Two New Records:

### (a) The Highest Climb

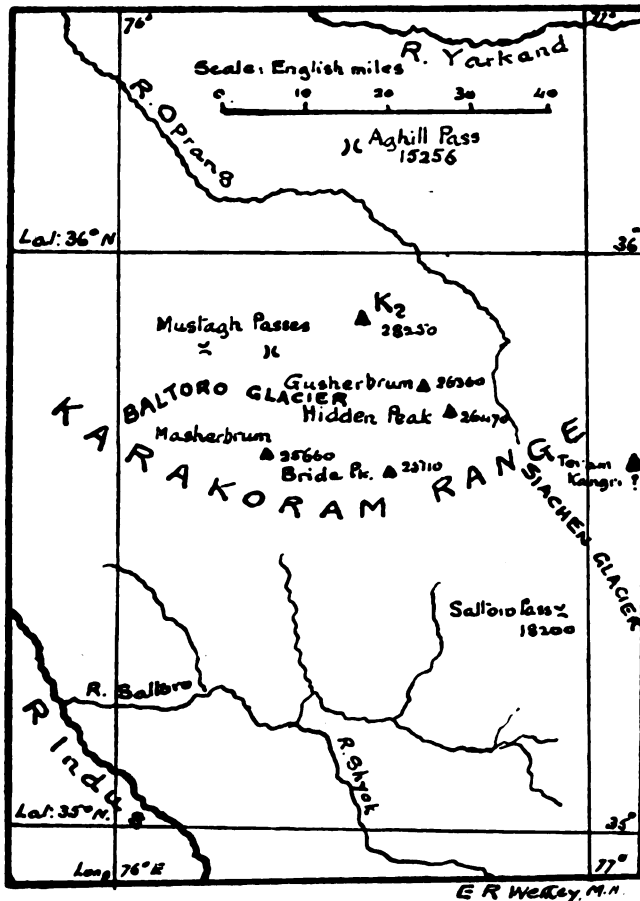
The aviators (if this monstrous word is destined to be their ultimate name) have a long way to travel yet, an they mean to beat the mountaineers. Up to the present year of grace they have, with much blare of trumpets, attained some 10,000 feet above sea-level. The mountaineers are far ahead. Their latest record is just short of 25,000 feet. This was achieved by H.R.H. the Duke of the Abruzzi in his expedition of 1909 amongst the giant Karakoram of North Kashmir. His idea was to attack some of the mighty peaks which cluster round the head of the great Baltoro glacier. The diagram-map shows the scene of his operations. The

weird and mysterious K<sub>2</sub>, the second highest mountain in the world, was the first objective. K<sub>2</sub> was found quite impossible, while the act of discovery made away with the best part of the season (June) for climbing. Not a whit daunted, the Duke turned off south, and at once attacked another mystery, Bride Peak. On July 18th, with two guides he stayed for three hours at a height of 24,583 feet, some 500 feet from the summit, and easily the highest point ever reached by man. It is only a few years ago that to sleep at 20,000 feet, or to climb to 24,000 feet, was supposed to be impossible. Mountain sickness would supervene; the human body could

not stand it. The Duke stayed *three weeks* at a height of 21,000 feet; one of his camps actually touched 22,400 feet, and his highest climb was, as we have seen, only just short of 25,000 feet.

### (b) The Highest Mountain.

About a month earlier than the royal explorer's feat another great exploit was in the making. Some forty or fifty miles east, as the crow flies, Dr. T. G. Longstaff, the well-known Himalayan mountaineer, was in the neighbourhood of the Saltoro Pass and on the Siachen Glacier.<sup>1</sup> He was observing for the first time what may possibly turn out a rival to Everest herself. He saw a huge mountain mass to the north-east, the highest point of which he dubbed "Teram Kangri." He estimated it at 25,000 feet at least, but when his observations and measurements were afterwards worked out, the figures reached 30,000, or 1,000 feet higher than Mount Everest. This seemed so stupendous that fresh calculations and greater allowances for error were made, and the final figure fixed nominally at 27,160 feet. Not for fifty years has a peak approaching this height been discovered. Nor is Everest by any means safe until further exploration settles the question.



Peaks, Passes, and Glaciers of a portion of the Karakoram Range in N. Kashmir.

THE expedition of the Duke of the Abruzzi to the Karakoram Himalayas is described by Dr. Filippo de Filippi in the January, 1911, number of the *Geographical Journal*. In spite of many difficulties, much useful and important work was accomplished. Sedimentary and crystalline rocks were found, constituting different portions of the region traversed, and peaks rising well above 20,000 feet occurred in each. Measurements at the beginning and end of the expedition on the Baltoro glacier gave the average movement as 5½ feet a day during June and July.—*Nature*, February 2nd, 1911.

<sup>1</sup> Both the Saltoro Pass and the Siachen, or, as it used to be written, Saichar, Glacier were known before, but neither the exact position of the pass nor the immense size of the glacier had been determined. Dr. Longstaff fixed both these points on this expedition.



## THE LOCAL HISTORY OF UNIMPORTANT PLACES.<sup>1</sup>

By JOSHUA HOLDEN, M.A.

Headmaster of the Cleckheaton Secondary School.

**M**OST places are obviously *unimportant*. Hence, if local history is to be taught in schools, the task of teaching the history of unimportant places will confront the great majority of teachers. But it is in dealing with this subject that teachers are left with the least help. In this paper I wish briefly to suggest in what way the problem of local history teaching should be approached by teachers who live in unimportant districts.

### THE INVESTIGATION OF WRITTEN RECORDS.—

(a) In the first place it will be advisable to read a good, but not too exhaustive, history of the county, noting any points that are concerned with towns or places near the given district. A preliminary survey of this kind will serve to show which periods in history are likely to be of greatest local importance. Further, any detailed references to local incidents that occur in the larger county histories will serve as points of departure for future investigation.

(b) The history of the ancient parish to which a given district belongs should also be studied. In ecclesiastical history, in addition to the introduction of Christianity and the foundation of various churches, there will come under consideration the relation of churches to monastic institutions or to lords of the manor, the celebration of church festivals, and the history of educational and philanthropic effort.

(c) These steps, however, are merely a necessary introduction to the more detailed work of archæological and antiquarian societies. Only men with special knowledge and considerable leisure can hunt successfully through copies of court rolls, or the proceedings of ancient manor courts; through poll-tax and subsidy returns, wills, and other legal documents, or through parish registers, in order to discover local material, or elucidate obscure local allusions. Thanks to the work, however, of important archæological societies these records have been examined and in part published, or abstracts have been furnished of their contents. From these sources fuller information may be obtained on points suggested by the more general county histories. This may seem a formidable business, but if irrelevant subjects are ignored, it is not unmanageable.

(d) Further help may be gained from the work of more strictly local societies, if such exist within a radius of ten or twenty miles. Their yearly reports contain the researches of men who are interested in their own particular districts.

(e) Of great importance are local contemporaneous records that deal with particular townships or parishes. I refer to the accounts of constables, surveyors of highways, churchwardens and overseers during the seventeenth, eighteenth, and early nineteenth centuries. The careful study

of these old ledgers reveals, as nothing else can do, the very spirit and character of a society that is rapidly passing away even from the quietest of our rural parishes.

(f) One other source of local information should not be neglected, viz., Acts of Parliament relating to local enterprise or administration; for example, the various Acts that deal with the construction of turnpike roads, canals, and railways; or Acts dealing with Poor Law administration; or the various Orders received by a given district for the establishment of Poor Law unions, sanitary districts, and school boards. The reports issued by the Charity Commissioners as to the history and condition of local charities throw considerable light on the growth of religious and educational enterprise during the last few centuries.

The above suggestions comprise what may be regarded as the first method of inquiry. If diligently pursued I venture to assert that though at first local facts may seem to the student to be almost as infrequent as comets, nevertheless before the end is reached, facts in meteoric showers will meet him, and there will be a danger that excess of detail may paralyse his imagination. To be thoroughly equipped, however, with such local details is a necessary part of the training of a teacher of local history.

For the cultivation of his imaginative faculty and to give the breath of reality to dry-as-dust details, the best material lies closest to his hand, and its investigation constitutes the second method of inquiry. This method (to be pursued concurrently with the first) consists in a practical survey of the particular neighbourhood, within a radius of five miles, so as to ascertain what local history material is still visible on the landscape, and then to study each object in detail. An exhaustive enumeration of objects is obviously impossible; but churches and manor houses or ancient halls; grammar schools and endowed schools; Elizabethan and seventeenth-century farmsteads; old hamlets and pack-horse roads; or, to go back still further, ancient crosses, traces of Roman roads and camps, of Celtic burial mounds and circles, or the remains of flint implements scattered on the moors; these and more than these await the interpretation of a local historian, who may thereby add a new and more intelligent interest to what have long been familiar objects.

In this more practical inquiry, local industries and their antecedents will claim attention; old customs and superstitions, even old domestic utensils or whatever may illustrate the habits and beliefs of former days, will be carefully noted. Moreover, a study of the physical characteristics and the dialect of the inhabitants of our smaller towns and villages, as well as of place names and local surnames, may enable the student to link both the men and speech of the present generation with vanished races and forgotten languages.

The advantage of securing the assistance of local antiquarian societies in these researches needs only to be stated, especially as for the inspection of unpublished parish registers, township

<sup>1</sup> A paper read to the Manchester Branch of the Historical Association.



documents and old deeds, privileges are more readily granted to responsible societies than to private persons. Hence I would suggest that in furtherance of local history teaching, the question of mapping out each county into areas within which history students may affiliate themselves with local antiquarian societies on one hand, and on the other with a branch of the Historical Association, is worthy of some consideration.

In conclusion, I wish to point out what seem to me two positive advantages that unimportant places possess from the point of view of local history teaching.

In most large towns and cities all the old landmarks have been ruthlessly destroyed. The immense activity and aggressive modernity of city life to-day render it almost impossible for city children to realise the character of lives that with few exceptions were passed in small towns or on rural uplands. In quieter country places there is the largest available proportion of local history material. Even the folk themselves are a better type for illustrative purposes.

Hence it is possible for the country child to gain a more vivid sense of the continuity of the present with the past. Take, as one instance, any urban or rural township in Lancashire or the West Riding of Yorkshire. The old mills that lie in ruins in the cloughs; the almost empty farmsteads and deserted cottages on the uplands; the neglected pack-horse roads, abandoned meeting houses and burial grounds; all still remain to help boys and girls to realise the successive stages by which the more diffused domestic system of industry that prevailed before the Industrial Revolution was gradually replaced by the modern industrial factory system with its concentration of population in large towns. And if a boy learns that from the busy life of upland townships in the past there came men who rendered conspicuous service to their country, the inference may not be too far-fetched that in comparatively *unimportant* places even to-day boys and girls may learn to cherish ideals of wider and more extended service for their country.

#### PERSONAL PARAGRAPHS.

LAST month I noticed the remarkable continuity of the academic life and interests of the Rev. E. Tindal Turner, Fellow of Brasenose College, Oxford, who died at the age of eighty-eight. A close parallel is afforded by the life of Mr. H. A. Pottinger, Fellow of Worcester College, who recently died at the age of eighty-seven. He lived in Oxford, without missing a single term, for nearly sixty years—that is, from the date of his matriculation in 1842 until his death. He was educated at the Communal College, Havre, and, entering at Worcester in 1842, graduated in 1846 at the same time as his friend Thorold Rogers. Others of his intimates were Mark Pattison and H. W. Chandler. As a private tutor he made a reputation by his teaching of the classics, law, and modern history.

In the two latter subjects he became a lecturer at Worcester College in 1865, but not until 1883 was he elected a Fellow. In 1884 he took up the management of the college library. As a university politician he was active in the Liberal interest. When, in 1863, Jowett was indicted on a charge of heresy by Dr. Pusey, Mr. Pottinger appeared in the Chancellor's Court as Jowett's defender, and ten years later he issued a pamphlet, "University Tests," attacking Dr. Pusey. He had been a great traveller, was a good linguist, and well versed in European politics. Compared with modern standards, it cannot be said that his academical advancement in Worcester College was anything but slow; but it was sure. His wide interests and immense learning were bound to make their mark.

\* \* \*

Two cases of retirement next summer are announced, those of the headmaster of Charterhouse and Mr. W. S. Bambridge, Mus.Bac., organist of Marlborough College. Mr. Bambridge, whom I know for an excellent musician, has served at Marlborough under four masters, Dr. Bradley, Dr. Farrar, Canon Bell, and Mr. Frank Fletcher. After some eleven years' experience at Clewer Church, Windsor, he went to Marlborough in 1864. I remarked in February, 1909, that forty-five years of service should have earned him a pension. It is to be hoped and supposed that such is now the case.

\* \* \*

DR. RENDALL retires at the age of sixty. He was appointed in succession to Dr. Haig Brown fourteen years ago, having been previously principal of the Liverpool University College. About midway in his time at Charterhouse, I believe, he published his translation of the "Meditations of Marcus Aurelius."

\* \* \*

To Charterhouse has fallen a bequest of £5,000 by the will of Mr. H. Silver, the old Carthusian, who was once on the staff of *Punch*. Charterhouse also has a new school secretary in the person of Mr. H. S. Wright. He succeeds Mr. H. W. Lee.

\* \* \*

MR. W. GEORGE, of Brighton Grammar School, who died in the first week of March, was an old and valued servant and friend of the school. Appointed by Mr. E. J. Marshall in 1866, he was for some time house-master, and did full teaching until December, 1907, when he retired at the same time as Mr. G. Cole, who had completed forty-five years of service. A sum of money was then raised by old boys as a testimonial to both. Pensions, it is to be feared, there were none. Though nominally on the retired list, Mr. George continued to give assistance with morning work until the week before his death. On April 2nd, like Mr. Cole, he would have completed his forty-five years of service. In spite of worse conditions, I believe that long and loyal service is as common in England as, or even commoner than,

in other countries. America, we are told, changes some 25 per cent. of its educators every year! Mr. George was seventy-two years old. At one time, as was the custom of the day, he had control of three classes, and younger men were put to a sort of apprenticeship under him. It is acknowledged by some living that they learnt much from him in the way of class management.

\* \* \*

THE election of Dr. T. Herbert Warren as professor of poetry at Oxford University was welcome news. The popular president of Magdalen has written a good deal of excellent criticism, and has some achievement in poetry to his credit. One remembers very favourably his "Death of Virgil," published some few years ago. He is a great appreciator of the ancient classics, and a ready encourager of the young authors of to-day. His three years of office as vice-chancellor were years of very strenuous work, culminating in the period of discussions of Lord Curzon's scheme of reform.

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At the sister University of Cambridge, Dr. A. W. Verrall has been appointed by the Crown to the King Edward VII. professorship of English literature, which was endowed by Sir Harold Harmsworth. Since 1873 (when the late Mr. S. H. Butcher was First Classic, and Dr. Verrall and Mr. T. E. Page bracketed second) Dr. Verrall has devoted himself to classical lecturing, chiefly at Trinity College. Any reader of his work, whether on Euripides, or Martial, or Horace, must admit that he is always an intensely interesting, though often a very provocative, writer. One does not easily forget "Euripides the Rationalist." There can be little doubt that after his deep draughts of training at the well-spring of modern literature, he will come like a giant refreshed with the waters of Castaly to the interpretation of English literature, and that his interpretation will be literary and critical in the best sense of those words. Dr. Verrall's course of Clark lectures on English literature is said to have been of distinct eminence.

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NOTTINGHAM UNIVERSITY COLLEGE has appointed as its registrar, out of a large number of candidates, one of its own lecturers, Dr. T. P. Black. He is Ph.D. of Strasburg, was formerly demonstrator in physics at Armstrong College, Newcastle-on-Tyne, and has for some time been lecturer and demonstrator in physics at Nottingham University College. ONLOOKER.

*I Wonder: Essays for the Young People.* By the Writer of "Confessio Medici." viii+109 pp. (Macmillan.) 3s. 6d. net.—These essays will prove rather difficult reading for the young people, but many of them will think the reading well worth while. The early chapters provide a first excursion into metaphysics, and the thoughtful boy will delight in them. The essay on "The Wonder of Pain" is an inspiration, and will prove a welcome moral tonic to many a reader. We have read the essays with very real pleasure.

## ENGLISH AND HISTORY.<sup>1</sup>

By R. K. POLKINGHORNE, B.A.

County Secondary School, Stockwell.

ONE of the most valuable gifts a boy or girl can carry away from school is the ability to express his or her thoughts in words. Knowledge without this power is, to a great extent, useless to the ordinary individual. Now it is not true that "we shall assuredly write well if we have something to say." One has only to consider the large number of people who have something to say and the few who say something well. Most children have something to say, but they do not write well; and as they grow older the difficulty of expressing their thoughts in words tends to increase. I have met people who think that the best way to teach children to write well is to give them ideas. This seems to me no way out of the difficulty; to have ideas is one thing, to express them another. Moreover, our teaching is obviously very unsympathetic if we do not discover that the children have plenty of ideas of their own. This giving of ideas, whether the ideas be in the form of stories, suggestions for practical work, or isolated thoughts, tends to be dangerous, because it may deaden the child's ideas and power of initiation. It would be probably wiser to set a child to work to learn a dictionary than deliberately to set to work oneself to give ideas. I want to emphasise the impossibility of teaching children to write by any other means than by giving them power over many words. Let us see that English lessons teach children the correct use of words, and show them how the happy combination of words will alone make our ideas intelligible and acceptable. Literature is a difficult art; but, as Stevenson says, "the business of life is mainly carried on by this difficult art, and according to a man's proficiency in that art shall be the freedom and the fulness of his intercourse with other men."

Children really need help to increase their vocabulary, to learn how to connect words and appreciate style. They need help also to acquire a robust taste in literature, so that they will attempt difficult reading and not let their minds sleep over the multitudinous light literature of the day.

The work of the teacher of English is rendered very difficult at present by the large number of books published. "Never since printing was did the Press fling broadcast such millions of worthless or mischievous pages as now in comparison with sound, true literature." Our work, therefore, must consist, not merely in encouraging children to read, but to read the right sort of book.

Reading in itself is not a virtue. Our aim in the English lesson must never be to inculcate a love of reading; this is as dangerous an aim as to give the child ideas. If we can direct the taste of children in the right direction with regard to reading, their proper education is assured.

Fortunately little children have good taste; but unfortunately children at a very early age begin to love trivial stories, and reading that requires no effort. Teachers, often unknowingly, make no attempt to direct children to grander stories and more satisfying, if harder, books because so many hours of the most impressionable period of children's lives is wasted over grammar, analysis, and letter-writing.

Let us consider what should be done in the English

<sup>1</sup> Abstract of a paper read to the Watford branch of the Head Teachers' Association.

lesson to increase a child's vocabulary and give the power of connecting words and appreciating literature.

Dictation is certainly valuable, especially if the passage is studied first for spelling, punctuation, and the use of words; but it is too mechanical an exercise to develop in children freedom of expression. Passages can frequently be chosen that express rightly what the children have expressed wrongly; dictation can, in fact, be made to help composition. It is of much less value if a piece is chosen just because it is a dictation lesson. Every difficult word in a piece of dictation should be carefully dwelt upon and used by the children in as many different ways as possible, until they are quite familiar with it.

More important than dictation is reading, aloud or silently, for one always remembers that the best way to learn how to write well is to read nothing but good English from the first. It matters so much what the children read and how they read that the reading lessons may become waste of time. Whether the children read silently or aloud, we must take care that they appreciate, not only the ideas in the book, but the words. The book they read is sure to contain difficult words and sentences. Afterwards we can give lessons on these, though it will not matter if we do not explain them all; it is well to leave the children something to wonder about. It is best to dwell chiefly on the words they are likely to want. We must not read with them books written in their own limited vocabulary. Fairy-tales have been particularly sinned against by being rewritten for children or written for them in feeble language. We want to keep every fairy story, where possible, high and dignified in tone and feeling. Fortunately, in the beginning children are not afraid of hard words or difficulties, unless we continually talk down to them; then they soon become lazy in mind. If the subject-matter is sufficiently interesting, the child will puzzle out the words, and a book that yields up its treasures little by little is more fascinating to a child than one which is quite within its grasp.

For children of eleven, good text-books to read in class are the "Celtic Romances," translated by P. W. Joyce (Longmans, 3s. 6d.), the "Heroes of Asgard," by A. E. Keary (Macmillan, 1s. 6d.), and the "Adventures of Odysseus" (the translator must be a clever story-teller). From these three books the children will pass on to essays—those of Lamb, Addison, Goldsmith, &c., and to Shakespeare's plays.

Now I come to the most important work in English lessons, namely, the oral work—oral composition. Given fine reading books, the children have before them examples of what can be done by the arrangement of words. It must be our business to make children doers, not listeners only; to encourage them in the art of arranging words themselves. One way is to allow them to dramatise stories we tell, or they invent. It is a mistake to let them act the stories from their reading books, for they will follow the words of the book too closely, and then their work is hardly an exercise in composition.

Read or tell a well-written story, first writing on the board the names of the characters and the scenes to be described, assigning one to each child. The characters and scenes will probably go around two or three times, so that there will be two or three sets to retell the story. In this way every child has a living interest in the tale. Let each set repeat the story. This plan provides a good opportunity for correcting accent and grammar, and teaching quite naturally the use of new words. Leave the retelling of the story for a day or two, giving the children time to think and write down what they are going to say.

Then the next time it is told the result will be better. I am never sure how much time one ought to spend in this way over the same story. I have frequently spent so long as one term over a story. Children, I find, generally want the old tale over and over again, and delight in trying each time to lengthen it by adding more words without spoiling it.

It is not easy to find the right sort of tale that can be retold with advantage by the children. A story with a great deal of action in it does not help them sufficiently with their composition, and may mean too much playing about. The best stories for the purpose are the simplest in action, but they must be given a fine setting in words.

If as well as teaching English we teach history, we have a grand series of stories that the children can retell; but we are forced to move on more quickly, so that rather different methods can be adopted. For instance, the children cannot put all the words together themselves—some of the speeches must be historic. We have to try to find from the old chronicles the exact words used by the kings and warriors of other days. Some combinations of words the children can and must arrange themselves; but we must remember that we are teaching history, and therefore follow closely some original sources. The children can gain a great deal through acting scenes from history, for, quite naturally, they will learn to consult and read and understand wonderful books like Froissart's *Chronicles*, Scott's "Tales of a Grandfather," and other historical novels. If they invent less, the compensation is their diligent search for suitable speeches or suitable words among old romances, and the fact that they must learn to understand what they find.

I think we should never let them act a scene from history unless we can give them some trustworthy records to consult, or read them a very faithful account of the event. Little is to be gained by allowing them to learn and act historical plays especially written for them. There is no virtue in the acting; it is the method by which the play is produced that is of value. The method means that the children consult scholarly books for themselves, and add each time to their vocabulary words which they must understand and use. Every history lesson, indeed, means the acquisition of new words, and on the right understanding of these words and their ability to use them depends their grasp of history. Teaching history is not alone teaching the interesting and important doings of long ago, but teaching words also, and if we neglect the latter our work has but a feeble foundation. We need not simplify our language to too great an extent, but we must take care, not only to explain the words we use, but to see that the children can use them. It is one thing to know the meaning of a word, another thing to know how to use the word. One has naturally to guard against children using difficult words just for the sake of their difficulty or length. However, the only way to find out what meaning or meanings a child attaches to a word is to get her to use the word freely.

If time permitted, I should like to deal at some length with stories from history that can be acted, and mention some books that children will find helpful. But these stories are too numerous to name. One text-book, however, I must mention that I have found very helpful—Charlotte Yonge's "Cameos from English History." Not only the well-known events in history that no book passes over should the children act, but others which, although less known, are important for representing faithfully the spirit of the age. One thing we ought to avoid persistently is any historical play written for children. There is little

to be gained by teaching children to act; the play itself is not necessarily of value, but the method.

There is little fear that the children's powers of memory will not be cultivated in school, but there is danger that the children will not learn to marshal their facts correctly and "will not learn how to learn." Ability to marshal facts correctly, ability to find and employ information, ability to use words correctly, should be the result of allowing children to retell fairy stories or stories from history, but only if a sufficiently high standard is taken, if the acting is considered of the least importance, and if the teacher frequently says "I don't know" and leaves the children to discover and think.

## UNIVERSITY LOCAL EXAMINATIONS.

### SET SUBJECTS FOR 1912.

#### OXFORD.

##### Preliminary.

*Religious Knowledge.*—(a) 1 Samuel (chap. i.-xvii.), (b) St. Matthew (chap. x.-end), (c) Acts (chap. xvii.-end), (d) the Church Catechism.

*English History.*—Either (a) the Outlines from 55 B.C. to 1399 A.D., or (b) the Outlines from 1399 to 1714, or (c) the Outlines from 1689 to 1837.

*English Author.*—(c) Either (a) Lamb, "Tales from Shakespeare," First Series (Cambridge Press), or (b) Macaulay, "Horatius" and "Lake Regillus."

(d) Either (a) Scott, "Talisman," or (b) "Select Poems of Tennyson," by George and Hadow (vi.-end, omitting xxi., xxii.) (Macmillan).

*Geography.*—(iii) The geography of one of (a) England and Wales, (b) Scotland and Ireland, (c) India.

*Elementary Latin.*—"Caesar in Britain," by W. D. Lowe (Clarendon Press), or "Easy Selections from Ovid in Elegiac Verse," by H. Wilkinson (Macmillan).

*Elementary Greek.*—Sidgwick's "First Greek Reading Book" (ed. iii.). Exx. 31-69 (Rivingtons).

*Elementary French.*—Either "Seulette," by Pressensé (Hachette), or "Ma première visite à Paris" (Clarendon Press).

*Elementary German.*—"Heroengeschichten," by Niebuhr. (Clarendon Press).

##### Junior.

*Religious Knowledge.*—(a) 1 Samuel, (b) St. Matthew, (c) Acts xiii.-end, (d) Prayer Book.

*Ancient History.*—Outlines of Greek History from 501 to 404 B.C.

*English History.*—(a) Outlines of English History from 55 B.C. to 1135 A.D.; or (b) Outlines of English History from 1066 to 1485; or (c) Outlines of English History from 1485 to 1714; or (d) Outlines of English History from 1689 to 1837.

*General History.*—(a) Either from 1715 to 1816, or (b) from 1803 to 1880.

*Foreign History.*—Outlines of General European History from 1095 to 1254.

*English Literature.*—(c) Either (a) "The Oxford Treasury of English Literature," vol. ii. (pp. 1-12, 153-284), by G. E. and W. H. Hadow (Clarendon Press), or (b) Shakespeare's "Tempest"; (d) either Shakespeare's "Henry V." or "Macbeth," or Scott's "Quentin Durward"; (e) Scott's "Lord of the Isles"; (f) Scott's "Marmion," "Old Mortality," "Legend of Montrose"; (g) "Select Poems of Tennyson," by George and Hadow (Macmillan); (h) Stevenson's "Treasure Island"; (i) Byron's "Childe Harold," canto ii.

*Geography.*—(i) Geographical Principles, (ii) British Isles, (iii) one of (a) Mediterranean region, (b) Monsoon region of Asia, (c) Atlantic region of North America.

*Latin.*—Caesar, "De Bello Gallico," III.; "Selections from Ovid's Metamorphoses," edited by D. A. Slater (Clarendon Press).

*Greek.*—Xenophon, "Anabasis," III.; Lucian, "Vera Historia" (Clarendon Press).

*French.*—Either Verne, "Le tour du monde en 80 jours" (Hachette), or Erckmann-Chatrian, "Histoire d'un homme du peuple."

*German.*—Hein, "Auswahl deutscher Prosa der Gegenwart" (pp. 1-114) (Clarendon Press).

##### Senior.

*Religious Knowledge.*—(a) 1 Samuel, (b) Old Testament History, (c) St. Matthew, (d) St. John, (e) Acts xiii.-end, (f) Acts xiii.-end in Greek, (g) 1 Corinthians, (h) Prayer Book.

*Ancient History.*—Outlines of Greek History from 501 to 404 B.C., with special questions on the Ionic Revolt and the Persian Wars.

*English History.*—Either (a) 55 B.C. to 1135 A.D., or (b) 1042-1485, or (c) 1399-1603, or (d) 1603-1763, or (e) 1763-1880, or (f) 1792-1880, or (g) the Outlines of English Political History from the Anglo-Saxon Conquest to 1837.

*General History.*—Either (a) from 1715 to 1816, or (b) from 1803 to 1880, or (c) the Extension of European power to other Continents.

*Foreign History.*—Outlines of General European History from 1095 to 1254.

*English Literature.*—(c) Either (a) "The Oxford Treasury of English Literature," vol. ii., pp. 1-284, by G. E. and W. H. Hadow (Clarendon Press), or Shakespeare's "Tempest"; (d) Shakespeare's "Hamlet," "Coriolanus," "Twelfth Night"; (e) either Shakespeare's "Henry V." or "Macbeth," or Scott's "Quentin Durward"; (f) Scott's "Lord of the Isles"; (g) Scott's "Marmion," "Old Mortality," "Legend of Montrose"; (h) "Select Poems of Tennyson," by George and Hadow (Macmillan); (i) Thackeray's "Esmond"; (j) Spenser's "Faery Queen," I.; (k) Bacon's "Essays," 1-40; (l) Peacock's "Selected English Essays" (pp. 1-29, 52-61, 94-133, 139-156, 228-282, 357-395, 414-420, 524-end) (World's Classics); (m) Johnson's "Life of Milton" and "Vanity of Human Wishes."

*Geography.*—(i) Principles of Geography, (ii) British Empire, (iii) one of (a) Europe, (b) Asia, (c) North America (including West Indies).

*Latin.*—Virgil, "Aeneid," I., II., or Caesar, "De Bello Gallico," III., IV., or Cicero, "In Catilinam," I., II.

*Greek.*—Either Plato, "Apology," or Sophocles, "Ajax."

#### CAMBRIDGE.

**RELIGIOUS KNOWLEDGE:**—*Preliminary.*—(a) St. Matthew, i.-xiv., or (for Jewish students only) 1 Kings, ix.-end; (b) 1 Samuel, i.-xv.; or (c) the Church Catechism.

*Juniors.*—(a) St. Matthew, or (for Jewish students only) 1 Kings; (b) 1 Samuel; or (c) The Acts of the Apostles, xiii.-xxviii.; or (d) the Church Catechism, and the Offices for Baptism and Confirmation in the Book of Common Prayer.

*Seniors.*—(a) St. Matthew, or (for Jewish students only) 1 Kings; or (b) The Acts of the Apostles, xiii.-xxviii.; (c) 1 Samuel; or (d) 1 Corinthians; or (e) the Litany and the Offices for Communion, Baptism, and Confirmation in the Book of Common Prayer.

ENGLISH LANGUAGE AND LITERATURE:—*Preliminary.*—(c) Scott, "Lady of the Lake," cantos i. and v.; or (d) Lamb's "Tales from Shakespeare" ("The Tempest," "As You Like It," "The Merchant of Venice," "Lear," "Twelfth Night," "Hamlet").

*Juniors.*—(b) Shakespeare, "Henry V."; or (c) Scott, "The Lady of the Lake"; (d) a paper of questions of a general, not a detailed, character, on Scott, "Woodstock," and "Select Poems of Tennyson," v.-xvii., ed. George and Hadow (Macmillan).

*Seniors.*—(b) Shakespeare, "Henry V."; or (c) Milton, "Samson Agonistes"; (d) a paper of questions of a general, not a detailed, character, on Shakespeare, "King Lear," Gray's "Poems," and Southey's "Life of Nelson."

HISTORY, GEOGRAPHY, &c.:—*Preliminary.*—History of England. The paper will consist of three Sections on the periods (a) 1066 to 1485, (b) 1485 to 1688, (c) 1688 to 1815 respectively. Candidates may, if they wish, select questions from all three of the Sections, or may confine themselves to two or one of them.

Geography. Great Britain; and general Geography.

*Juniors.*—(a) History of England. The paper will consist of three Sections on the periods (a) 1066 to 1485, (b) 1485 to 1688, (c) 1688 to 1832 respectively. Candidates may, if they wish, select questions from all three of the Sections, or may confine themselves to two or one of them. Or (b) Outlines of the History of the British Empire from A.D. 1492 to A.D. 1784. Or (c) Outlines of Roman History from A.D. 37 to A.D. 117.

(d) Geography. Questions will be set on (a) Great Britain and Ireland, (b) Africa, (c) North America and the West Indies. Candidates may select questions from all three of the Sections, or may confine themselves to any two.

*Seniors.*—(a) History of England. The paper will consist of three Sections on the periods (a) 55 B.C. to 1485 A.D., (b) 1485 to 1714, (c) 1714 to 1867 respectively. Candidates may, if they wish, select questions from all three of the Sections, or may confine themselves to two or one of them. Or (b) History of the British Empire, as for Juniors. Or (c) Roman History from A.D. 37 to A.D. 117.

(d) Geography. The paper will consist of four Sections on (a) Great Britain and Ireland, (b) Asia, (c) Africa, (d) North America and the West Indies, respectively. Candidates may select questions from all four of the Sections, or may confine themselves to any three or any two.

LATIN:—*Preliminary.*—"Ora Maritima," pp. 23-58 (Swan Sonnenschein).

*Juniors.*—(a) Caesar, "De Bello Gallico," I., 1-29; (b) Caesar, "De Bello Gallico," I., 30-54; (c) Virgil, "Aeneid," VII., 1-405; (d) Virgil, "Aeneid," VII., 406-817.

Any two of these four to be taken.

*Seniors.*—Tacitus, "Agricola"; or Cicero, "de Amicitia." Virgil, "Aeneid," VII.; or Horace, "Odes," Book III.

GREEK:—*Juniors.*—(a) Xenophon, "Anabasis," V., 1-4; (b) Xenophon, "Anabasis," V., 5-8; (c) Euripides, "Alcestis," 1-567 (omitting 86-136, 213-244, 435-475); (d) Euripides, "Alcestis," 603-1163 (omitting 962-1005).

Any two of these four to be taken.

*Seniors.*—Demosthenes, "Olynthiacs"; or Plato, "Crito" and "Euthyphro." Homer, "Iliad," XXIII.; or Euripides, "Alcestis."

FRENCH:—*Juniors.*—Erckmann-Chatrian, "Madame Thérèse," chapters i.-ii.

GERMAN:—*Juniors.*—Hauff, "Der Scheik von Alessandria und seine Sklaven."

## HISTORY AND CURRENT EVENTS.

PORTUGAL had a revolution not long ago. Mexico seems, at the date of writing, to be in the middle of one, as well as Great-Britain-and-Ireland. How differently is ours being conducted from those of the Latin countries we have mentioned! "We are changing our constitution." Have we a constitution to change? Our friends in Europe and America could say we have no constitution. "If you have one, produce it," they might exclaim. That of the United States of America is contained in a sixteen-page pamphlet, purchasable for a few pence. But where is the constitution of "England"? It must be sought in precedents, customs, tacit understandings, much more than in statutes or written law. And, if the "Veto" or "Parliament" Bill passes, will it receive a two-thirds majority of the two houses, or be submitted, by way of referendum, to the county councils or to the people at large, as would be required if we were "like the nations round about us"? No; it will be just ordinary law, which, to use Oliver Cromwell's phrase, a later Parliament may "unlaw" whenever it pleases. There is no stability in the British constitution. And why? because it is a living thing with powers of growth. All others are imitations.

Our readers doubtless know Mark Twain's humorous treatment of the question of local time in his whimsical story of Tom Sawyer Abroad. "The Lord made the day, and he made the night; but he didn't invent the hours, and he didn't distribute them around. Man did that," is Tom's lucid explanation of the matter to his less keen-witted companions. The latest illustration of this matter is the action of the French authorities, who have now abolished the trifling difference between the official time of their country and that of the neighbours with whom they have an *entente cordiale*. There will be no need to alter our watches when we visit Paris at Easter. But as the line must be drawn somewhere, we shall, if we journey from Geneva along Lake Leman, start at (say) 10 a.m. and arrive at our next station (on the south bank) at 9.30. And we shall still find that the express train from Lausanne arrives at Pontarlier (apparently) just half an hour after the corresponding train has left that custom house for Paris.

THOSE who have occasion to read German books or conduct correspondence with Germans know the difficulty of reading their characters in anything but the best light, and we are not surprised that the manufacture of optical glasses has been studied so scientifically in Germany that they have beaten our English manufacturers in that branch of industry. For some years, however, the practice has grown of printing books in the type familiar to the other nations of western Europe, and German school children have therefore to learn some half a dozen alphabets. It seems, however, that the newer practice is to be encouraged, if not enforced, by Governmental authority, and therefore, considering the inherent conservatism of human nature, it is natural that "Pan-Germans are agitating in favour of the old ways, and associations are being formed to petition the Reichstag 'not to deal a blow at one of Germany's most sacred possessions.'" Note the touch of religion in the phrase. "Deutschland" is a religion.

THREE hundred years ago a new translation of the literature which we call *par excellence* the Bible was published as an outcome, as every schoolboy knows, of the conference held under the presidency of him who would fain have been called King of Great Britain, as well as France and Ireland. The Puritan members of the Church of

England gained nothing more for their views than this new translation of what was to most of them the "infallible word of God." That translation, based largely on older ones, has served the English-speaking world from that day to this, the "revision" of the latter half of last century having by no means superseded the "authorised" version. How differently are those books regarded now! Then they were the manual, not only of theology, but of science and politics. Now science is sought elsewhere, and politics is but opportunism, good or bad. And to the trained student of Hebrew literature, modern criticism and research have revealed views of their composition and inspiration that would have made our Puritan fathers aghast. We seem to be on the eve of the popularisation of new ideas as to the history of Israel.

## ITEMS OF INTEREST.

### GENERAL.

WITH its March issue, which was worthy of the occasion, the *Journal of Education* reached its 500th number, and we take this opportunity to offer our hearty congratulations to our contemporary. We have been diligent readers of the *Journal* for many years, and our acquaintance with and respect for it have grown together. Its consistent and strenuous advocacy of efficiency in education has been an important factor in securing the progress which has taken place in secondary education in recent years. We hope the *Journal* will continue its usefulness for many years to come.

THE annual meeting of the Secondary Schools Association is to be held at Caxton Hall, Westminster, on April 4th, at 2.30 p.m. The Rev. Dr. Gow, headmaster of Westminster School, will read a paper on "The Proper Function of a Secondary School."

THE summer meeting of the Association of Assistant-mistresses in Public Secondary Schools will be held on May 27th at the Ladies' College, Cheltenham.

THE annual general meeting of the Society of Schoolmasters was held at Denison House, Westminster, on March 4th. The committee subsequently met, and voted grants to an unusual number of applicants.

IN the prefatory memorandum to the Grant Regulations for Technical Schools, Schools of Art, &c., in England and Wales, issued in August last, it was announced that the Board of Education hoped before the end of 1910 to issue a new body of regulations which would come into force on August 1st, 1911. The Board announces that it has been found impossible to complete the preparation of these new regulations at as early a date as was contemplated. The Grant Regulations for 1910 will, therefore, be continued in force during the educational year 1911-2, and it is hoped in the course of the coming summer to issue the new regulations, which will become operative for the year 1912-3. New regulations with regard to the Science and Art examinations, the National Competition, and the various forms of scholarships and exhibitions given and aided by the Board are under consideration, and it is hoped that some of the changes involved may be announced in the course of this summer and become operative in the summer of 1912.

REPLYING to questions in the House of Commons recently, the President of the Board of Education said the normal requirement of 25 per cent. of free places has been reduced, in respect of the current school year, in 124 of

the 909 secondary schools in receipt of the higher grant in England and Wales. All cases where a reduction of the normal requirement has been made are reviewed from time to time, but there is not a fixed interval common to all. Any change of the conditions under which the reduction of requirement was originally made, and any new circumstances arising subsequently, are taken into consideration as occasion requires. In these 124 schools the number of free places actually required for the current school year was 957. The number which would have been required at the full rate of 25 per cent. is 1,820. But the number actually given was 1,201, and fifty-four more were offered, but not taken up.

A BILL to provide for the establishment of compulsory continuation schools in England and Wales, presented by Mr. Chiozza Money, has been ordered by the House of Commons to be printed. The object of the Bill is to make school attendance compulsory for all children not exceeding fourteen years of age, and also to make attendance at day continuation schools compulsory for all children whose age exceeds fourteen but does not exceed seventeen years who are not otherwise being systematically educated. The minimum attendance demanded at continuation schools is fixed at eight hours per week, and employers are placed under penalties to allow the due attention of the continuation pupils in their employ. No fees are to be charged. The system of continuation schools which the Bill seeks to enact is almost the same in detail as that which is in successful operation in Munich. The cost of carrying out the provisions of the Bill is made a national charge. The following table, based upon the statistics prepared for the Board of Education by the Continuation Schools Committee which was appointed in 1907, gives some indication of the numbers of adolescents receiving no regular education:

Boys and Girls (England and Wales), 1906-7.

| Age    | Population  | Not at School <sup>1</sup> |           |
|--------|-------------|----------------------------|-----------|
|        |             | Number                     | Per cent. |
| 12 ... | 687,300 ... | 14,424 ...                 | 2.10      |
| 13 ... | 690,300 ... | 155,871 ...                | 22.58     |
| 14 ... | 691,000 ... | 442,950 ...                | 64.10     |
| 15 ... | 682,100 ... | 523,383 ...                | 76.73     |
| 16 ... | 649,200 ... | 532,016 ...                | 81.95     |
| 17 ... | 664,900 ... | 557,632 ...                | 86.87     |

ON March 3rd the Supplementary Estimates came up for discussion in the House of Commons. Mr. Ian Malcolm made the pertinent remark that "a notable change had come over the public mind in regard to competitive examinations; many people wondered whether the cramming up of results really provided the country with the best possible sort of Civil Servant." He might have pointed to the Board of Education, wherein officials are chosen by nomination from distinguished university men, and wherein the work of the country is no worse done than in the other Government offices. In recent years Lord Fisher arranged that the future officers of the Navy should be chosen by inspection after passing a qualifying examination, and it seems as if Mr. Haldane proposes to adopt the same method in selecting Army officers. It is quite clear now to all educationists that the best type of brain is not that which can sop up facts rapidly and then place them on paper within a given time.

A NATIONAL Conference on Industrial Training, held for the formation of the National Industrial Education League, took place at the Guildhall, London, on February 28th.

<sup>1</sup> Every description of school (day and evening) except Sunday schools.

The Lord Mayor, in opening the proceedings, read a message from the King expressing sympathy with the objects of the conference and the belief that a further development of industrial training would be of inestimable benefit to the nation. The following resolution was carried by an overwhelming majority: "That this conference views with grave concern the large number of children annually leaving school without practical training for definite vocations, and resolves that a national system of industrial, professional, and commercial training should be established, to which the children shall pass as a matter of course (unless the parents are prepared to undertake their future training), and without interval, for a definite period, to be thoroughly trained for entry to the particular calling for which they are best fitted, such training to be under fully qualified instructors. That the Government be urged to provide by legislation such a complete system of training, free to all scholars, and the expenses thereof defrayed from the National Exchequer." The League was duly established, and a large general committee was appointed, which included representatives of employers, workers, the Corporation of London, the Guilds of London, and a few educationists.

THE thirty-ninth annual report of the council of the Girls' Public Day School Trust, Ltd., presented to the shareholders at the annual general meeting held on March 15th, showed that the number of schools conducted by the Trust remains at twenty-nine. At the end of 1910 there were 5,992 regular pupils and 135 students in training, making a total of 6,127. There were, in addition, more than 400 pupils for special subjects only. The present year has opened with an increase in the number of pupils and students, the first in any term since 1908. Two head-mistresses have resigned, Miss Steele from Notting Hill and Miss Major from East Putney, on their appointments to the headmistress-ships of the Grey Coat Hospital School, Westminster, and King Edward's School, Birmingham, respectively. Domestic science is now taught at thirteen schools in all. A department for the training of domestic science mistresses has been opened at Clapham High School. Music has become a particularly strong feature at many of the schools. The music department at Kensington continues its success, and three Trust training scholarships in connection with it have been instituted by the council. Several schools provide practical training in secondary-school teaching for university students.

THE Board of Education has published the second volume of "Statistics of Public Education in England and Wales." This part is concerned with the financial statistics of the years 1908, 1909, and 1910. The net total expenditure out of the Parliamentary Vote for the year 1909-10 was £13,638,424, of which amount £610,435 was disbursed as grants for secondary schools. Small though this amount was, it represented a substantial increase on previous years, the grants for 1908-9 having been £506,107, and for 1907-8 £342,393. In 1909-10 the grants on account of pupils in preparatory classes and pupil-teachers amounted to £116,173, and the maintenance grants for training colleges were £460,985. The only change of any importance in the volume consists in the inclusion of tables giving particulars as to the salaries of supplementary teachers, student-teachers, and pupil-teachers on the staff of ordinary public elementary schools; in previous volumes the salaries of these classes of teachers have not been dealt with. We notice that in the case of certificated teachers the average salary of men head teachers was for the year 1908-9 £173 11s. 2d., for women head teachers

£120 17s. 7d., for men assistant-teachers £124 7s. 3d., and for women assistant-teachers £90 3s. 8d.

A VERY complete system of scholarships and exhibitions has been built up by the Education Committee of the County Council of the West Riding of Yorkshire. Starting with a county minor scholarship, which covers tuition fees at an approved secondary school, there is nothing to prevent an intelligent hard-working boy from proceeding so far in the business of educating himself as his native abilities will permit, without any expenditure on the part of his parents. Moreover, his education may take almost any suitable form. There are opportunities of attending a university college, a technical college, a training college, or, in fact, any place of higher education. Provision is made for training young men to become miners, agriculturists, schoolmasters, or artists. The needs of women have not been forgotten. We commend the recently published Handbook of the Committee to the attention of the education authorities in other centres of population.

BULLETIN no. 5 of the Carnegie Foundation for the Advancement of Teaching, which has been received, deals with academic and industrial efficiency. Mr. M. L. Cooke, a member of the American Society of Mechanical Engineers, has, by request, made a study of the departments of physics in a number of American universities and colleges, and reported on them to the Carnegie Foundation from the point of view of one outside college work who has to do, in the main, with the study of the efficiency of industrial establishments. The report merits the earnest attention of all education authorities who desire to bring higher education into closer touch with industrial activity. As Mr. Cooke says: "An alert manufacturer is constantly engaged in trying to find out, not only what his competitors in his own line are doing, but he is constantly sending into other industries to see what may be found in them that is applicable to his own business." "The professor has felt, however, that his work is so radically different that he cannot apply the same standards of criticism to his work as obtain generally throughout other departments of life." But "if an educator is to possess his future in as full a measure as is possible, he must invite criticisms and help from wherever he can get it." We hope this bulletin will be widely studied in this country, for many of Mr. Cooke's criticisms and suggestions apply with just as much force here as in the United States.

THE Poetry Society, founded two years ago, has already an official organ and an educational policy. The former, known as the *Poetical Gazette*, is published as a monthly supplement to the *Academy*; the March issue contains an interesting article on the society's mission. But it is chiefly owing to its educational aims that we invite our readers' interest in the movement. We may say at once that the promoters hardly realise that, so far as the teaching of English literature in schools is concerned, poetry has hitherto held pride of place; indeed, it has not infrequently been regarded as a synonym for that branch of culture. But where we cordially agree with the educational policy of the society is in its insistence that poetry is written for sound rather than sight-reading, and that therefore more attention must be paid to elocution, as the technique of an art. We welcome unreservedly any efforts to reform and improve the art of reading and speaking; and if the society will help us—as seems likely from its sensible and spirited advocacy—to insist upon proper methods of voice production or cultivation, we shall regard it as an educational force of the greatest value. For



detailed information as to the objects of the society, poetical competitions, diploma examinations, and other activities, we refer our readers to the secretary, at Clun House, Surrey Street, Strand. A perusal of the names of the vice-presidents and patrons will dissipate any idea that we have here only one more association for faddists and cranks.

THE *History Teacher's Magazine* of Philadelphia has now reached the middle of its second year of issue. In the issue for January last it introduces one novel feature, viz., a "List of Historical Publications issued by American publishers during the preceding month." The list here given reveals an extraordinary activity in the American historical world, for it contains more than one hundred items. It is true that this first list is a double one covering a couple of months, and that some of the American publishers are merely representatives of English publishing houses; but in spite of these facts the output of genuine American work is very large. Another special feature of this number of the magazine is a series of full reports of the annual meetings of the various American and English historical associations. The comparison of the work that is being done by the different societies of teachers of history is very suggestive. Among the ordinary articles, the one which will be of most interest to English readers is "English History and the Present Crisis," by Dr. R. W. Kelsey, of Haverford College, Pennsylvania.

WITH reference to the letter, published on p. 120 of our last issue, dealing with Joyce's "Old Celtic Romances," Messrs. Longmans, Green and Co. inform us that the book is now on sale, price 3s. 6d.

#### SCOTTISH.

THE Educational Institute has issued a memorandum to its members in regard to the draft scheme of superannuation. Emphasis is laid upon the fact that the scheme is based upon principles laid down in the Act of 1908, and no departure from this is possible. It is also pointed out that the scheme is based on actuarial investigation. Only a certain amount of money is available, and only a certain amount of benefit can be given. If more is wanted in one direction it can only be had by reducing benefits in another. Members are accordingly warned to frame their amendments with due regard to these limitations. The institute considers the provisions of the draft scheme distinctly favourable to the profession as a whole, giving practically Civil Service benefits to all future teachers.

THE spring meeting of the Modern Language Association was held this year in Glasgow University. Dr. T. Pettigrew Young presided over a large attendance. Dr. Schlapp, Edinburgh University, moved a series of resolutions which gave rise to a prolonged discussion. The following were generally approved: (i) that the intermediate course should contain at least one foreign language; (ii) that the leaving certificate should be awarded to pupils who complete a two years' post-intermediate course in at least four subjects, and obtain passes in three separate subjects; (iii) that the school leaving certificate should be accepted by the universities as equivalent to their Preliminary examination; (iv) that the Preliminary examination of the universities, as regards number and choice of subjects and standard of pass, should be the same as the Leaving Certificate examinations of the Department; (v) that in the bursary competitions of the universities modern language students should receive equal treatment with classical students, both as regards choice of subjects and the number of marks attainable in each subject.

A REPORT on the teaching of grammar in schools, prepared by the Scottish branch of the English Association, was discussed at a largely attended meeting of teachers in the Philosophical Society Hall, Glasgow. Mr. Boyd, lecturer on education, Glasgow University, in submitting the report, explained that the inquiry had been instituted in accordance with the decision of the council of the association to hold an annual inquiry into some question relating to the teaching of English. Some 400 circulars had been issued with questions bearing on the practice in schools, but only 25 had been returned. Mr. Boyd explained that through the good offices of members of his education class he had received replies from about 200 others. The replies showed that there were few out-and-out defenders of grammar in its pure and unadulterated form. The large majority approved its retention in a modified form as an aid to correct speech and writing. The few who opposed all grammar teaching did so on the ground that the subject was too abstract and too analytical for youthful minds. Mr. Boyd was inclined to side with the minority, who questioned its usefulness in elementary schools. Formal grammar, he considered, had no affinity with the child mind. It was the invention of very highly educated and very highly sophisticated minds.

EDINBURGH Provincial Committee for the Training of Teachers has given its approval to a scheme providing hostels for its women students. The students for whom the committee will have to make provision number about 250. To accommodate these, it is proposed to erect five separate houses, each containing about fifty students. Each hostel is estimated to cost £8,400, and the total cost of the scheme, exclusive of the price of the site, will reach £45,000. The adoption of the dormitory or cubicle system would considerably reduce the cost of building, but very wisely the committee has decided that a study bedroom be provided for each student. If a hostel system is considered necessary, there can be no doubt that this is the best form for it to take. It gives all the advantages of communal life without sacrificing the individual. The common dining room and common recreation room will tend to create a social atmosphere that should prove stimulating and bracing, while the private room will be a haven of refuge in those moments when "solitude is the best society."

THE scheme allocating the Education (Scotland) Fund among the various county committees has all along been bitterly opposed by more than half of the bodies concerned. The section protests that under the present distribution those districts the education rates of which are highest receive the smallest contributions, notwithstanding the fact that the Act of 1908 decreed that such districts were to receive most benefit. The question has been repeatedly brought before Parliament and the Education Department, but has always been shelved on the plea that, though the present arrangements were purely tentative, there was not yet sufficient data whereon to frame a permanent scheme. This session the opponents of the present basis of allocation made an attack in force upon the Department, threatening to move an address to the Crown praying that the Department's scheme should not be approved. The mere threat has proved effective, as the Secretary for Scotland has promised to produce a new scheme for the allocation of the monies in 1912. In thus steering clear of Scylla, he is likely to be overwhelmed by Charybdis, as the supporters of the *status quo* are arming for the fray.

THE new Code which has just been laid on the table of both Houses of Parliament does not differ in any material

respect from that of last year. It was generally expected that a new clause would be introduced giving effect to the reduction in the number of pupils to each certificated teacher, as foreshadowed in last year's Code. The non-appearance of the clause does not mean the abandonment of the policy, bitterly as it was assailed in certain quarters. It is understood that negotiations are proceeding with the Treasury for increased educational grants to meet the increased expenditure necessary. When these have been completed, a special minute will be issued providing for the distribution of the money and for the reduction in the size of classes.

THE Court of Glasgow University has approved of the recommendation from the Association of Secondary Teachers that the general Bursary examination should be held on a date near the end of the school session instead of at the beginning as at present. At the same meeting Sir Donald MacAlister intimated that a sum of £2,500 had been left by the late Mr. James C. Harvie, Edinburgh, for the foundation and endowment of professorships in French and German. Sir Donald, in expressing the gratitude of the Court, stated that a further sum of £5,000 would enable them to establish a French chair.

### IRISH.

At the time of writing, the intentions of the Government towards the finances of intermediate education are not quite clear. Appearances, however, point to an offer which no one in Ireland could regard as satisfactory. It seems that the Government propose to substitute for the "whiskey" money a fixed sum of under £50,000, which is considerably below the maximum which it reached in 1900 of £71,000, since when it has steadily fallen. This is to be permanently fixed, and Ireland is not to receive for secondary education any annual grants corresponding to her needs such as England and Scotland receive from the Board of Education. If this is to be the case, there can be little hope of educational progress in Irish intermediate schools; but it may be that the Government has some better intentions in store. Otherwise, farewell to all the schemes of registration, pensions, increasing salaries, &c., of which the air has been full this winter.

THE Department has published No. 2 of vol. xi. of its *Journal*, containing 200 pages of matter (price 6d.). The *Journal* deals with all that variety of subjects connected with agriculture and technical instruction which come under the care of the Department, such as butter, flax, tobacco, all kinds of field crops, cattle, manures, &c.; but what is particularly noticeable in this number is the first of a series of articles dealing with the work done in the National Museum of Science and Art in Dublin. This article contains thirteen pages of print, in addition to ten full pages of photographs. It is in two sections. The first deals with the natural history collections, in which a large amount of rearrangement has recently taken place. The second deals with the following collections in the art and industrial division: the National Museum lace collection; the Andrews loan collection of Chinese porcelain; old Irish silver dish rings; Greek terra-cotta figures; the Irish antiquities section; and mineralogy and physical geology.

A NEW monthly magazine, *The Irish Review*, of which the first number appeared in March, and which promises to deal with Irish literature, art, and science from the national point of view rather than from that of any party or coterie, is interesting to us for the amount of space and attention it gives to education. It favours amalgamation of many of the smaller primary schools, better accommo-

dation, and improvement in the condition of the teachers. It laments the condition of intermediate education, the position of the teachers, the inadequacy of the funds, and the harm done to Irish schools by the practice of sending Irish children to English schools.

THE executive committee of the Better Equipment Fund of the Queen's University, Belfast, has allocated its income as follows: (i) £1,200 to the credit of the athletic field account, bringing it up to £6,500; (ii) the interest of £500 given by the Right Hon. Thomas Sinclair for purchasing books for the library of the commercial faculty, and the interest on various special sums for various laboratories and museums. The Belfast University Commission has assigned £200 to be used in providing entrance prizes and scholarships in the faculty of commerce during the next three years. The Senate has adopted a scheme for new university buildings at a cost of £75,000, including a Vice-Chancellor's house costing £4,000.

THE Department announces a series of summer courses for teachers this year to be held in Dublin. The July courses will be in (i) experimental science, laboratory arts, drawing, and modelling; (ii) domestic economy and manual training; (iii) office routine and business methods; (iv) hygiene and sick nursing, and housewifery; and (v) Carrickmacross lace-making, crochet work, embroidery, and sprigging. The August courses will be in (i) manual training (metal work), practical mathematics and mechanics, and handrailing; and (ii) rural science (including school gardening). The course in experimental science will be in the second year of the preliminary course and in the third- and fourth-year courses in chemistry, physics, mechanical science, botany, and physiology and hygiene.

### WELSH.

THE Carnarvonshire County Education Authority is directing the attention of all the local education authorities in England and Wales to certain provisions contained in the Scotch Code with regard to supplementary courses for children of from twelve to fourteen years of age. These consist of commercial, industrial, rural, and household management courses. It is urged, further, that in these courses school work should aim at producing a useful citizen imbued with a sense of responsibility and of obligation towards the society in which he lives. It should render him—so far as the school can do so—fit in body and alert in mind, and should prepare him for the rational enjoyment of his leisure time, as well as fit him for earning his living.

THE Carnarvonshire Authority points out that the course of instruction which is already provided at the Higher Standard School, Portmadoc, is essentially on the lines of the Scotch supplementary courses, and in the Higher Standard Schools at Carnarvon and Llandudno it is proposed to do even more. But under the provisions of the Elementary School Code applicable to England and Wales at the present time, no larger grants are available in aid of advanced instruction such as will be provided at the higher standard schools, beyond the ordinary grants payable to public elementary schools. Thus the grants payable in respect of school children in England and Wales amount to 22s. only, against 50s. to 55s. in Scotland. Moreover, the grants in respect of approved courses of practical instruction are on a more liberal scale in Scotland, as the maximum grant obtainable in England and Wales is 7s., whereas in Scotland it ranges from 8s. 4d. to 12s. 6d. It is also to be noted that the Scotch Code

allows the pupil to attend the public elementary school up to eighteen years of age, whereas the limit of age in England and Wales is fifteen years. The Carnarvon Authority wishes the same extension of age in Wales in view of the work of the higher standard schools of Carnarvonshire. But one is obliged to raise the question as to the effect of such an extension of age upon the Welsh intermediate schools with which Wales has so liberally provided herself.

A DISCUSSION in the Anglesey Education Committee has arisen in connection with the action of the managers of one of the schools taking down from the school walls a portrait of Mr. Lloyd George, placed on the wall by the headmistress of the school. It was argued by one of the members of the local authority that "some latitude should be given to the teachers. They should be something more than mere puppets in the hands of the committee." This is excellent, though the latitude, it may be pointed out, might extend to other matters than that of liberty to put Mr. Lloyd George's portrait on a wall of the schoolroom.

THE Bishop of St. Asaph, for example, has been saying bold words, which it is hopeless to expect to be acceptable to intermediate-school governors at present, or, indeed, for a long time to come; and yet the Bishop *may be right*. He said at the recent prize distribution at St. Asaph County School that he "was not sure that the best thing that could be done to some of the schools would not be to burn all the syllabuses and the regulations of the Central Welsh Board and give the headmasters a perfectly free hand to educate their boys as they pleased." A Welsh M.P., Mr. Ellis Davies, has pointed out recently that "education is not necessarily culture, and examination successes did not imply the possession of a well-stored mind or a well-balanced judgment. At present too much importance is attached to book-learning and examinations, forgetting that there were great men in Wales before the examination system."

THE President of the Board of Trade (Mr. Sydney Buxton) has received a deputation from the governors of the Welsh National Library asking that in the new Copyright Bill an obligation should be put upon authors to send copies of books to the new Welsh National Library. The President, in reply, pointed out that formerly there were eleven institutions entitled to copies of books, but that number had been reduced to five, and the Royal Commission of 1878 recommended that these obligations should be abolished, except as regards the British Museum. To carry out the wishes of the deputation would be to tax authors to the amount of some £2,000 a year for the benefit of a particular institution, "a proposal difficult to justify."

#### GERMAN.

AMONG the anniversaries and landmarks of last year are: the foundation of a technical high school at Breslau, the opening of a commercial high school at Munich, and the celebration of the centenary of the University of Berlin, with the prospective foundation of an Imperial chemical research institute to mark the occasion. It is now one hundred years since the institution of the Examen pro Facultate Docendi was instituted in Prussia, an examination which effected a separation between preaching and teaching, and fifty years since the union of secondary-school teachers was founded in Switzerland.

THE Trades' Council of Hanover has published the result of an inquiry into the exemptions from examination and study which may be obtained by attendance at German

technical institutes. A systematic classification of these trade schools is hardly possible, but it may be assumed that the courses are suited to the three stages of the skilled mechanic's career: apprentice, journeyman, and master. Each of these stages concludes with an examination in theory and practice, and between the stages intervals for study are prescribed. The examinations are held by recognised bodies, who accept the certificates of the trades' schools as equivalents. The exact equivalent at which a certificate is valued depends on the extent of the curriculum and the position of the school. In answer to circulars, sixty-four out of seventy-two centres gave particulars relating to 314 schools. Of the trades specified, the builders gain most advantage, whole or partial exemption being frequent in their case. In fifty-two schools some privilege of exemption beyond the apprentices' examination was conferred. In a large number of these schools complete exemption from further examination in theory was obtained by the holder of the leaving certificate, and in eleven further examination in practice was not required. In eighteen cases the length of the interval for study was diminished, and in six the right to take apprentices follows when the holder of a certificate reaches the age of twenty-four. It would be idle at present to draw any deductions from percentages, since nearly one half of the replies come from non-State schools. The return marks a stage in the standardisation of the trade schools which may be of great importance in the immediate future.

A COLONIAL training school for women has been opened in Hessen, as an extension of a similar school for men, under the direction of Countess Zech, whose experience in German colonies, where her husband occupied official positions, has been very extensive. The need of women emigrants is very great in German colonies, where there is usually one white woman to every eight or nine white men. There is greater need that those who emigrate should be well fitted for their tasks, as theirs will be no humdrum existence, but one in which resource, adaptability, and forethought are indispensable. In German South-West Africa there is already one training school for women emigrants, but facilities for teaching tropical medicine and other branches of a domestic economy curriculum are not yet available.

THE Hessen school is built to accommodate thirty pupils, who spend one or two years, according to age and previous training, in mastering a curriculum which embraces, not only the domestic arts of cooking and preserving provisions, and the agricultural occupations of poultry-keeping and dairying, but also the accomplishments of riding, joiner's work, and upholstering. The certificate of proficiency in tropical medicine and veterinary science gives the holder the right to vaccinate natives. As a stimulus to the emigration of German women, the various women's suffrage societies are agitating for the grant of the suffrage to such of their countrywomen who may take the patriotic step of assisting in the formation of a greater Germany beyond the sea.

*Man's Redemption of Man.* By William Osler. 60 pp. (Constable.) 1s. net.—This lay sermon, delivered at a service held for the students of the University of Edinburgh, in connection with the Edinburgh meeting of the National Association for the Prevention of Tuberculosis, will form a piece of stimulating reading for the pupils in upper forms of secondary schools. It is an eloquent record of the triumphs of modern medical science.

## A HISTORY OF MODERN TIMES.

*The Cambridge Modern History.* Vol. xii. The Latest Age. xxxiv + 1033 pp. (Cambridge University Press.) 16s. net.

WHEN, in 1854, the expectations of those who inaugurated the Great Exhibition of three years before were disappointed, and the "long peace" which had reigned over Europe since the banishment of Napoleon Buonaparte to St. Helena was ended by the outbreak of the Crimean War, Europe entered on a period of more than fifteen years of international conflict which changed the map and fulfilled, to a large extent, the aspirations of the peoples—of those at least whose voices had been able to make themselves heard during the first half of the nineteenth century.

In those years Abraham Lincoln defeated the intentions of the Southern States to separate the North American federation into two loosely connected confederations, and set the United States on its career towards closer unity, and Otto von Bismarck used the method of "blood and iron" to weld most of the German States into a Prussian-led federation, to exclude from the purely German State that was to be those who were entangled with Slavs and Magyars by the "accident" of dynastic rule, and, incidentally, to complete the union of Italy which Cavour had planned and Napoleon III. had, in such strange circumstances, begun and recoiled from completing.

When, in 1870, Victor Emmanuel entered Rome and Napoleon's sham imperialism fell, and when, in 1871, German princes saluted the Hohenzollern as Emperor at Versailles, we who are old enough to remember those events, and were young enough then to be hopeful, began to think that the millennium had come at last, and that now the nations had attained their goal Europe would rest and be thankful.

Forty years have passed since those great days, and the volume before us tells the story of the generation which we may call "that of our fathers." What is the picture that it reveals? "One of peace in western Europe at least." Yes, but at what a price! The strong man armed holds his house, and only because war has become such a terrible unknown do the nations refrain from that arbitrament. And, not to speak of Poles and Lorrainers, the nations which had not attained their ideals by 1870-1 have waged war in the near and the far East.

"O'er all the world still it is Thor's day," and the burden of cost, both in material wealth and in the lives of men, weighs heavily on Christendom. The consequence is that politicians of all kinds have been busy devising where the burden shall fall—in other words, what shall be the incidence of taxation. Taxation, too, has been found a ready means for international jealousy to show itself, apparently less expensive than open hostilities. The nationality idea is embodied now in a desire on the part of each State to be self-sufficing, and to make itself rich by refraining from trade with its neighbours. Utilities—"goods"—are classified now, not according to the mutual profit of producer and consumer, but according to the country of origin. These are tariff wars.

And, while State still wars with State, there has come more into prominence this last half-century the struggle of class against class. The enormous increase in means of communication, leading to a more rapid spread of ideas, has brought the peoples together and has rendered possible an organisation for political purposes of classes which had previously been largely ignored. Hence the rise of what has been called "democracy," and its struggles for a betterment of the conditions of life. Statesmen in all

countries have been busy with the social problem. Many have been the solutions proposed, and certainly the condition of the poorer has in many ways and in many places been improved. But the millennium has not come. We are a disillusioned generation, and "the end is not yet."

The details of these great and varied movements who shall grasp? And therefore, as in previous volumes of this History, the work has been divided. The story of each country is told either by a native or by one who has had special means of knowledge. The information is not limited, as in previous volumes, to Europe. The whole world is now Europeanised or in immediate contact with "the sons of Japhet," and we have accordingly chapters, not only on "modern Europe" in general and by way of introduction, and on each European country, but also on the Ottoman Empire and its gradual partial dissolution, on Egypt, on the Far East, and especially on Japan, on European colonies, and the Republics of Latin (i.e., central and southern) America. Sir Frederick Pollock contributes a chapter on international law, and Mr. Sidney Webb on social movements in England and elsewhere, and there are, finally, chapters on the growth of physical science and on modern explorations (which is not to be understood until the promised supplementary volume of maps is published), and the volume appropriately ends with a survey, by Mr. G. P. Gooch, of the growth of historical science. Besides the eight hundred and fifty pages of text, there are a hundred and twenty-six pages of bibliography, unfortunately not classified according to the value of the books. These are followed by a chronological table of principal events and a very full index.

Such a book is, of course, beyond the power of any one person to criticise, and we have attempted no more than to indicate its contents. From those contents we miss a chapter on the United States of America; but that is because the history of that country was the subject of a volume published in 1903, and there is only a belated chapter on the international aspects of the Civil War, while the Roosevelt period has not been thought worthy of treatment. But where is the Christian Church? The eleventh volume has a chapter on "Rome and the Vatican Council," and the Scottish "Disruption" of 1843 receives attention, but in this volume ecclesiastical matters get only casual mention. The German Kulturkampf forms part of the chapter on Bismarck, but is not fully treated; there are allusions to missionaries in China and Africa; and possibly Mr. Webb includes Christian activities amongst the voluntary actions to which he refers. But beyond that there is practically nothing. Has, then, the Christian Church become unimportant? And is that because it has conquered the world, or because it has failed? And in the chapters on Japan the religions of that country are not considered worthy of mention. But we must leave the thoughts that arise to our readers.

*Introduction to Physical Chemistry.* By James Walker. Sixth edition. xii + 417 pp. (Macmillan.) 10s. net.—Teachers and students of the subject will welcome the appearance of a new edition of what has become the standard English text-book of physical chemistry. This issue has had the benefit of a complete revision, and has been improved by the substitution of more accurate numerical values and practical illustrations for older ones, where such have become available. There are also entirely new chapters on alloys, hydrates, colloidal solutions, and radio-active transformations.

## THE KING'S QUAIR AND OTHERS.

- (1) *The King's Quair and the Quare of Jelusy*. Edited by A. Lawson. 368 pp. (Black.) 6s.
- (2) *The Poems of Dryden*. Edited by John Sargeant. 606 pp. (Frowde.) 3s. 6d.
- (3) *The Utopia of Sir Thomas More*. Edited by George Sampson. 442 pp. (Bell.) 5s.
- (4) *Aids to the Study of English Verse*. By R. S. Wood. 32 pp. (Stead.) 1d.
- (5) *Collier's History of English Literature*. 836 pp. (Nelson.) 3s. 6d.
- (6) *English Literature*. By F. J. Rahtz. 244 pp. (Methuen.) 2s. 6d.
- (7) *Selections from English Literature*. By F. J. Rahtz. 212 pp. (Methuen.) 2s.
- (8) *Five Centuries of English Verse Impressions*. By W. Stebbing. 2 vols. 412 pp. and 410 pp. (Frowde.) 2s. each volume.
- (9) *Questions on Shakespeare*. Part I. 215 pp. 3s. Part II. 354 pp. 4s. (Chicago University Press.)
- (10) *An Introduction to Shakespeare*. By Drs. MacCracken, Pierce, and Durham. 222 pp. (New York: The Macmillan Company.) 4s.
- (11) *A Midsummer Night's Dream; As You Like It; The Tempest*. Edited by G. S. Gordon. 346 pp. (Clarendon Press.) 2s. 6d.
- (12) *Henry IV. and The Winter's Tale*. Granta Shakespeare. Edited by J. H. Lobban. 172 pp. and 178 pp. 1s. each.
- (13) *The Poetry of the Age of Shakespeare*. Edited by W. T. Young. 306 pp. (Cambridge University Press.) 2s. 6d.
- (14) *The Poet's Realm*. Edited by H. B. Browne. 224 pp. (E. Arnold.) 1s. 6d.
- (15) *A Treasury of Verse*. By M. G. Edgar. Three parts. 204 pp. (Harrap.) 2s. 6d.
- (16) *A First Book in English Literature*. By C. L. Thomson. 348 pp. (Marshall.) 2s. 6d.

(1) **THIS** book is a beautiful edition of a poem which surely enjoys its position by its being connected, and that not quite assuredly, with the name of an unhappy king. Not that "The King's Quair" has not in it one or two passages of beauty; but it is, at best, a Chaucerian poem written in a literary dialect. As a preserver of much early Scots and as a sign that Chaucer was soon after his day, not only known, but absorbed, the "Quhair" is most valuable. The present editor, who prints the MS. text on one side and the amended text on the other, in a most exhaustive introduction deals with the book from every point of view but one—he says nothing of it as literature. This is surely a pity. The life, captivity, reign, and murder of the king, the authenticity of the poem, the debt of the writer to the Chaucerians and to Chaucer, are all fully investigated. The book, with its introductions, illustrations, and notes, is a beautiful and satisfying edition of the well-known "Quhair." "The Book of Jealousy," a less known work, is added in MS. form. By the way, does Chaucer ever sound the *e* before a pure vowel? "The nycë ape" would, we think, be impossible in Chaucer.

With equal care but in a very different way, Dryden's Poems have been edited by Mr. Sargeant (2). In this case we have a most careful introduction on the errors in our Drydens, and as a piece of textual criticism, or as an introduction to such criticism, this introduction is most valuable. Equally interesting are the facsimiles of the original title-pages. The poems are not annotated, but the original spelling, and apparently the capitals, are

preserved (has the editor any theory as to the very consistent use of the capital by printers of Dryden's day?); all the prologues and epilogues are given (O Pudor!); and there is an excellent portrait. Very rarely indeed do we see so satisfactory an edition as Mr. Sampson's "Sir Thomas More" (3). It has supplied what has been asked for in these columns—a facsimile of Robinson's spelling and a copy of the Latin treatise. Holbein's beautiful portrait is, of course, given, and Roper's Life and the Letters are added; there is, too, a bibliography. The introduction, by Prof. Guthkelch, is, if we may complain, too short, and the quotation from Chaucer is the one verse describing a death scene which is inapplicable to Sir Thomas; but we are thankful for the whole book. Perhaps now poor Ralph Robinson may come into his own; he only gave us the "Utopia." As Messrs. Bell have done this, is it too much to ask that a limited number of short famous books might be reprinted in black letter; e.g., the beautiful "Piers Plowman," this same "Utopia," and "Reynard the Fox"?

Along with these texts we have received a number of aids to literature. We sometimes wonder for whom these are intended; surely not for the schoolboy. Mr. Stead (4) sends an admirable introduction to the use of his extracts from literature: it is difficult to exaggerate the possible use of a series like his; for, owing to its price, every member of a class may have a copy of a poet in his hand. Messrs. Nelson reprint in a revised edition (5) a book that has never been superseded. Collier's history is so bright, so easy, that it takes the young student by storm. Many good histories of literature have been noticed in these columns, but none is so welcome as this old friend. The illustrations, the typing, the index, and even the American supplement, remind us of times when we loved to get hold of Collier. It is one of the few histories for the pupil. Mr. Rahtz's books, "English Literature" (6) and "Selections from English Literature" (7), are perhaps more definitely intended for the examination room. Messrs. Frowde send "Five Centuries of English Verse" (8), a reissue of an older book which was noticed with considerable praise when it first appeared; and among other helps to the older student are "Questions on Shakespeare" (9), a most suggestive and thoroughly American publication; the first part is introductory; the second deals with early work. The assumption that Shakespeare's plays may be grouped under sunny, stern, and tragic periods is followed. The questions suggested are full and good; perhaps a few pages spent on answering them would have been welcome. There is nothing, so far as we know, like this except the examination papers edited by Prof. Skeat long ago; and there is room for a question book on English literature. Another book is "An Introduction to Shakespeare" (10). Singularly sane, but bristling, as all Shakespeare books are, with most contentious matter. The Shakespearean theatre (spelt, of course, theater), Elizabethan London, the sequence of the plays, and Shakespeare's (supposed) development, are all fully dealt with: the Bacon craze is too lightly touched on, and the difficulties connected with the Sonnets and with Shakespeare himself are ignored. One of the most useful chapters is "How Shakespeare got into Print." There are no facsimiles, but we have two theatre pictures: we should have liked six. Indiscriminate eulogy marks nearly all our books on Shakespeare: who wonders at possible reaction? Three plays, "A Midsummer Night's Dream," "As You Like It," and "The Tempest" (11), are very carefully edited, introduced, and annotated. The notes are at the end, as usual; the introductions are at the beginning, as usual.

We wonder why editors do not see the wisdom of putting notes at the foot and introductions at the end. The notes are good, but many are unnecessary; the plays are in some measure, but not wholly, prepared for school reading. The Cambridge University Press sends two plays (12), beautifully printed and very sparsely annotated, in dainty grey covers.

Besides these plays, there is the crop of anthologies (13). The first, a Cambridge anthology, is limited to the age of Shakespeare. Its excellence is that it gives us a great deal which is only to be found either in the originals or in Mr. Bullen's books (o.p.): its defect is that it is *virginibus puerisque*, and therefore cannot thoroughly represent the age. Many unfamiliar poems are included in Mr. Browne's collection. Miss Edgar's books have been commented on before, and Miss Thomson's collection of illustrative extracts from Pope to Burns is as well done as all her work is.

### HISTORY BOOKS FOR CHILDREN.

*Children in History.* By M. Quiller-Couch. 135 pp. (Oxford University Press and Hodder and Stoughton.) 10d.

*Stories from French History.* By T. Dyson. viii + 145 pp. (Methuen.) 1s. 6d.

*The Story of Westminster Abbey.* By G. E. Troutbeck. xiii + 262 pp. (Mills and Boon.) 1s.

*Highroads of General History.* By E. M. Wilmot-Buxton. 334 pp. (Nelson.) 2s.

*Men of Mark in the History of Western Europe.* By R. Wilson. 248 pp. (Nelson.) 6s. net.

Fifty years ago there were not many books for children of any kind. To-day their name is legion. And because we all feel that children should know something of history, that subject has its share in the "making of books" of which "there is no end." What should be the nature of such books? What history should children need? What should they learn? We know some elderly folk who still, in the presence of all modern development, are thankful that they were made to learn by rote the short paragraphs on scattered topics of which "Mangnall's Questions" is composed. They say that, whenever they come across an allusion in modern reading, the old words recur to them, and they can thus connect their new reading with facts which have become a part of their mental composition. What a contrast is that old book, with its curious woodcuts, a copy of which lies before us, to the books which we have taken as the text of our article, all good of their kind, and most of them plentifully adorned with pictures reproduced by the best modern methods.

Our subject naturally divides into two parts: that which concerns books to be used in the class-room, and that referring to books to be read out of school hours. Should any book be used in the class? and, if so, should it be a mere printed notebook (to save time and gain clearness) or should it be a reasoned account of the story to be studied by the children? There can be no concise answer to this question, for it depends on the age of the children and on the capacity, and even on the idiosyncrasies, of the teacher. But if books profess to tell the story, there are two necessary qualifications in the writers. They should either know at first hand the latest information on the subject (it seems strange to have to say this, but so many undertake to write history text-books who are not thus qualified) or should, if they are specialists as teachers, but not as historical students, submit their MSS. or their first proof to some history specialist. And, secondly, they

should take care to mention nothing that is not fully explained. There is nothing which tends more to give a distaste for a subject than to have a text-book which is not comprehensible, and contains terms unknown to the reader.

Both these considerations apply also to books for the school or home library, and for these other qualifications also are desirable, other questions arise. It may be that the school curriculum is too full for any enlargement of our subjects; and "English" history must still hold the field, even, if necessary, to the exclusion of all other. But there is abundant opportunity in books to be read out of school hours to speak of other matters than our own island-story, and we are glad to see that Miss (or Mrs.?) Quiller-Couch chooses some of her child-stories from other countries than our own, and that the author of "Men of Mark" has, for good reasons which he sets forth in his preface, "purposely left out of consideration the heroes of the homeland." "Highroads of General History," of course, tells of other Empires than the British.

Should such books be illustrated? Speaking generally, yes. Pictures are always useful if good. But maps are necessary, unless, indeed, access to a good historical atlas is assumed. And it is best not to assume it. That is the only fault we have to find with "Stories from French History"—that there is but one map to a book covering the whole of French history, and that one which represents Europe in the years 768-814. Pictures should be good, we have said, that they should not contradict the text. We have seen a book in which the text was careful to say that King John sealed Magna Carta, but in which the picture represented him with a quill pen in his hand. That is the objection to the reproduction of the pictures by the great masters. Excellent these are, and it seems a pity to find fault. But they are so often untrue to the facts that the child is only confused. Finally, all pictures should be explained, even if it takes a full page opposite them to do it. We have sometimes seen reproductions, e.g., of mediæval MSS., such as Magna Carta, without a transliteration of the text shown. Such things are merely glanced at by our child readers, and, not being understood, leave no impression on their minds.

### EDUCATIONAL PROBLEMS.

(1) *Educational Aims and Efforts, 1880-1910.* By Sir Philip Magnus. xii + 288 pp. (Longmans.) 7s. 6d. net.

(2) *Problems of the Elementary School.* By A. C. Perry. vii + 224 pp. (Appleton.) 5s. net.

(3) *The Grecians. A Dialogue on Education.* By J. E. Flecker. vi + 140 pp. (Dent.) 2s. net.

(4) *Principles and Ideals for the Sunday School.* By E. Burton and S. Mathews. vii + 207 pp. (University of Chicago Press.) 4s. net.

(5) *The Training of Infants, with especial Reference to the Sunday School.* By Dr. Kingsland Moore. xii + 103 pp. (Longmans.) 2s.

(6) *The Dawn of Character.* By E. E. R. Mumford. xi + 225 pp. (Longmans.) 3s. 6d.

THE part which Sir Philip Magnus (1) has played in the technical instruction movement has been so conspicuous that his services in other directions might easily be overlooked. His own account of what has been accomplished in the last thirty years will be read with great interest by a large number of educational workers who have played a less prominent rôle than the author in the march of events which he describes. He did well to re-

print some of his addresses, dealing with educational problems, many of which are still unsolved—the part which manual training should play in school, the much discussed domestic subjects, the organisation of London University, among others. All these subjects are treated with great clearness and insight; the addresses reveal an educationist and a man of affairs in whose sanity of view and soundness of judgment great faith has rightly been placed.

Much less pretentious in its scope is a little book on "Problems of the Elementary School" (2), by a distinguished New York schoolmaster. It is a capital plea for effectiveness in a few things as opposed to the ineffective diffusiveness which is generally felt to be the bane of the modern elementary school. Unlimited financial resources have not been all to the good in their influence, and the temptation which a showy collection of toy apparatus offers alike to the education authority and to the teacher has led to much waste of effort. Actual essentials have suffered because the necessity of drill has been forgotten, and so-called "culture subjects" have lost their value because they have been taught in the modified "precision-methods" mistakenly applied when absolute precision is needed. Light and shade have been lost, and the schoolboy does not learn the difference between browsing and working. He can do neither the one nor the other "intelligently, profitably, and joyously." The author says some sound things on the teaching of English, and offers some useful practical "tips" for the teacher of arithmetic.

It is only now and then one finds a book on education which attracts by the sheer charm of its style, but Mr. Flecker has surely achieved that distinction. He deals almost mercilessly with current educational conventions, and, in the manner of the Platonic dialogue, he sketches ideals that are frankly revolutionary with convincing persuasiveness. Few schoolmasters will read it without being provoked into violent disagreement, but none of them will be able to resist the desire to know all the author has to say (3). We hope his little book will be widely read; the fact that it is not written by a schoolmaster, but by an official of the Foreign Office, adds, we think, to its value.

One of the most remarkable signs of the progress of educational thinking is the strenuous effort which is being made to improve the work of the Sunday schools (4). No doubt this has come about very largely through the failure of the schools in dealing with adolescents, but aims and methods are under revision all through. The Sunday school without its kindergarten is already not abreast of the times. The greatest difficulty lies in the teachers; until they are willing themselves to go through the discipline of study, they cannot expect nowadays to make their pupils look seriously at the Bible. A merely emotional appeal does not meet the position. To teach the Bible effectively, a man must know his subject and know his boys. Messrs. Burton and Mathews have written an admirable essay in religious pedagogy. They know the weakness of things as they are, and face the difficulties with courage and with hope.

Dr. Kingsland Moore has written a little book also for Sunday-school workers (5). He has the school babies particularly in mind, and in very simple non-technical language he describes the salient features of mental behaviour in early childhood. The psychologist would perhaps often take exception to the things he says in his "Excursion into the Domains of Infancy"; but it is sympathetically written, and those for whom it is intended will profit by it. Should they feel a desire to pursue the subject, they will find Mrs. Mumford's "Dawn of

Character" (6) an altogether delightful book. It is a capital study of a small group of little children written with psychological insight and knowledge. Her book has no special reference to Sunday-school problems. We can recommend it to the careful study of all who are in any way interested in small children.

## RELIGIOUS EDUCATION.

*The Child and his Religion.* By G. E. Dawson. x+124 pp. (University of Chicago Press.) 3s. net.

*Old Testament History.* Period IV. From Solomon to the End of the Northern Kingdom. By J. M. Hardwick and H. Costley White. xv+172 pp. (Murray.) 2s.

*A Short Introduction to the Gospels.* By E. de Witt Burton. vii+144 pp. (University of Chicago Press.) 4s. net.

*A Handbook of the Life of the Apostle Paul.* Same author and publishers. 2s. net.

*The Revised Version for the Use of Schools.* (1) The First Book of the Kings. By H. C. O. Lanchester. xxiii+127 pp. (2) The Epistles of Peter, John, and Jude. By C. M. Blagden. 96 pp. (Cambridge University Press.) 1s. 6d. net each.

*Selections from the Old Testament.* By F. N. Scott. xxvi+335 pp. (New York: The Macmillan Company.) 1s. net.

*Education in Relation to the Christianisation of National Life.* Report of Commission III. World Missionary Conference, 1910. xx+471 pp. (Oliphant, Anderson and Ferrier.)

PROF. DAWSON'S work consists of material largely drawn from magazine articles and addresses. Its method is that of "popular science," the employment of comparative religion, genetic psychology, and the *questionnaire*, or catechism at large, not being of a convincing kind. Its matter is of a higher order, and of the sort which should prove of great assistance to those Sunday-school teachers who lack knowledge of children, and, indeed, to all instructors who are in doubt respecting the relation of religious teaching to education as a whole or with reference to the obligations imposed upon them by the results of recent Biblical study.

We are glad to note the publication of the fourth of the five "Periods" into which the editors divide the Old Testament. As in the earlier volumes, the A.V. text is used, accompanied by "introduction" and footnotes. The moral significance of the troubled period between Solomon's death and the fall of Israel is well brought out, and the student gets a coherent idea of the political welter so confusing to most readers; the brief sections on the different groups of prophets and their functions are particularly valuable in this connection.

Prof. Burton's "Introduction" seeks to bring out from internal evidence the aim and point of view of each evangelist in order so to relate the several results that "the true historic figure of Jesus the Christ" may stand revealed. Each gospel is treated under the heads of author, earliest readers, purpose, minor problems, and skeleton outline; in addition, there is a chapter on the relation of the Synoptics to the Fourth Gospel. The discussion of the authorship of *John* is particularly good, while that on the Synoptic problem is sufficient for beginners. The notes appended to *Luke* set out the evidence recently available for determining the date of Jesus's birth. The work is not intended for a school book, but it is quite suitable for use in a good sixth form, modern or classical.

The "Handbook" by the same author contains hints



and notes on the historical method of studying St. Paul's life and writings; there is also a brief introduction to each of the epistles ascribed to the apostle. The book may be recommended to the Sunday-school teacher or private student who, while ready to devote time and energy to the subject, lacks direction to the authorities—American, English, and German.

We have on a previous occasion noted the small type and crowded page which render unfit for their specific purpose the volumes of "The Revised Version for Schools." The introduction to 1 Kings makes clear the political situation which brought about the disruption of Solomon's kingdom, and the effect of the separation on the nation's religious life; there is also a useful note on the various functions—hortatory, advisory, and political—of the Hebrew prophet of the ninth century B.C. The New Testament volume takes account of recent studies, British and foreign. The introduction to 1 Peter is conservative in respect of authorship and date, though the dissentient view is given at some little length; the insuperable difficulties in the way of accepting St. Peter's authorship of the Second Epistle are forcibly presented, while the probability of the second-century author's indebtedness to Jude is maintained. The three Epistles of John are held to be by the apostle, son of Zebedee and author of the Fourth Gospel. Both volumes contain useful indexes of proper names.

"Selections from the Old Testament" is a volume in the well-known "Pocket Series of English Classics," included amongst them on the ground that the Authorised Version is the greatest prose masterpiece of our literature. In addition to a well-printed body of selections from the text, and some notes, chiefly geographical, there is an introduction, a model of point and brevity, which sketches the history of Palestine, describes the Jewish passion for righteousness, the relation of the Bible to Jewish life, and finally adds a few words on the Septuagint, the Vulgate, and the various English translations down to 1611.

It must not be supposed that the "Report of Commission III." is interesting in missionary circles only. In addition to the matters which primarily concern such a conference as met in Edinburgh last summer, this volume contains lengthy accounts of education, primary, secondary, and university, as it now stands in the many and widely scattered mission-fields. We cannot imagine anyone who is interested in any type of educational work failing to find much food for thought in these pages. The students of politics or of sociology may be surprised to discover how closely akin are the pressing problems of East and West to-day. We trust that this report will be widely read.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

*Chez les Français.* Edited by H. Carter. With Exercises by C. E. Shearson. vii+171+vii pp. (Black.) 2s.—This book is the sixth in a connected series, of which "La Première Année de Français" is the first. It is an advanced reader, excellently compiled by Mr. Carter, of passages descriptive of life in the different parts of France and of French life and thought generally. To the text Miss Shearson has added reform exercises which consist of very good questions on the text, questions on grammar, word-formation and vocabulary, and *sujets de composition*, which would have been more useful if headings had been supplied. (What is a pupil to make of such a subject as

*Les progrès de la civilisation* without further guidance?) The grammar questions are of such high quality that it seems churlish to criticise; but is *de* in "*des tiges de lavande*" rightly called a *partitif*? Misprints are rather too common, especially as regards accents. The only troublesome ones, however, are *ça* (for *çà*), *et là* (pp. 135, 139), *ceux que* (for *qui*, p. 152), *de exemples* (p. 161). A few pages of English notes give renderings of difficulties in the text. On the whole, this is an admirable book, which can be warmly recommended. It should be added that there are some good photographs of scenery; the reproductions of paintings are less successful, and Mr. Menpès (here called M. Mempès) in particular must be distressed at the picture of *femmes bretonnes* ascribed to him on p. 51.

*Méthode Directe pour l'enseignement rapide du Français par la conversation.* Par E. Cossard et P. H. Laurent. viii+187 pp. (Hachette.) 2s. 6d.—Reform teachers cannot complain that they are being neglected: publishers are vying with each other to offer them first courses on reform lines. The book written by Messrs. Cossard and Laurent contains excellent conversations, of which good use can be made, and the grammar is put lucidly. But the rate of *enseignement* is much too *rapide* for our pupils, as regards both vocabulary and grammar. A private pupil of considerable ability might keep up the pace without losing his breath; in class work it would take three years to work properly through this book, if it were supplemented, as it should be (and is not) by copious grammatical exercises. The pronunciation is not so fully treated as is generally thought desirable; probably the authors, being French, are not well acquainted with the special difficulties of English pupils.

*Histoire de Monsieur Blanc, d'un Nègre Noir et d'un Perroquet Vert.* By Mrs. J. G. Frazer. xii+132 pp. (Macmillan.) 1s. 6d.—Mrs. Frazer has long placed her dramatic gifts and her admirable knowledge of French at the service of the class-room, and her latest volume affords fresh evidence of her high spirits. It is true that she inclines to farce rather than to comedy, and that she is less successful with her adults (mostly grotesques) than with her children (usually quite human). In this book she introduces a new feature in the green parrot—a superb bird if ever there was one! Mr. H. M. Brock supplies a number of excellent illustrations. Mr. Chouville has given the phonetic transcription of the first nine pages of the text; unfortunately, this section of the book is disfigured by a good many misprints.

*Augier et Sandeau, Le Gendre de Monsieur Poirier.* viii+96 pp. (Macmillan.) 1s.—This volume has recently been added to Mr. Siepmann's French Series for Rapid Reading. A note supplies information about the authors, the text of the well-known play is well and clearly printed, there are a few notes on the subject-matter, and there is a section of words and phrases occurring in the text with their English equivalents. This makes a very pleasant edition of a play well suited for rapid reading.

*French Vocabularies, arranged for Repetition on a New Plan.* By H. Williams-White and E. Robichez. viii+72 pp. (Longmans.) 1s. 6d.—These vocabularies are nicely arranged and carefully put together, but it is not clear what the "new plan" is; we have been unable to discover features not to be found in other books. There are 144 lists, each of fifteen words; the English and the French are given in parallel columns.

*Vauvenargues, Selections.* Edited by A. Wilson-Green. 40 pp. (Blackie.) 4d.—The editor was well advised to make the biographical note longer than is usually the case in Blackie's Little French Classics, to which useful series this is a recent addition. The selection appears to us judicious, and the notes are scholarly. Misprints are rare; we have noticed *ancanit* (*Réflexions* 6), *de moins* (R. 10), *tout for toute* (R. 37), *object* (R. 99).

#### Classics.

*The Year's Work in Classical Studies, 1910.* Edited by W. H. D. Rouse. 180 pp. (Murray.) 2s. 6d. net.—This is the fifth year that the council of the Classical Association has issued this work, which is now too well known to require commendation. If anyone—classical or non-classical—wishes to know what work is going on at the present time in connection with classical studies at home and abroad, he should get this book, and even if acquainted with previous issues he will still be amazed at what has been called the Romance of Modern Classical Study. The editorial note states that this year there are no sections on Greek history, textual criticism, Hellenistic Greek, or modern Greek. The section on literature covers two years. The other sections are: classical work in schools; excavations in Greece; Italian excavation; sculpture and minor arts; ancient numismatics; Greek religion and mythology; Roman religion and mythology; Greek inscriptions; Latin inscriptions; Roman history; grammar, lexicography, and metric; literature; papyri; Roman Britain; New Testament; and prehistoric archæology. Each of the sixteen sections is by a recognised authority.

#### English.

*Historical Manual of English Prosody.* By G. Saintsbury. 347 pp. (Macmillan.) 5s.—This book was to be expected. It is said to be, not a mere boiling down of the greater volumes, but a new work. After Guest and Mayor, it comes, as all Prof. Saintsbury's writing does, like a drink of fresh water. It is sane and sanative; and the upshot of it all is—there is precious little to be learnt about the subject. The book deals with the syllabists, the stressists, and the footists (we coin the words to make the meaning clear): and in one illuminating part the writer takes a line and treats it as the three sects would treat it. The chapter giving illustrations is, as the Professor admits, the most useful in the book; yet even this only tells us how a learned writer scans abnormal lines (we can all do the normal). Has not the writer come across this in Shelley's "Prometheus":

"Ah me, alas! pain, pain ever, for ever?"

What is he going to do with this bit of melody? The book is richest between the times of Chaucer and Milton. A glossary and a bibliography are added.

At the risk of being considered impertinent, we must say that even the great Professor, to us, seems to have missed the importance of the voice. All careful metrists rely on the effect produced by the living voice: perfect music is heard set to perfect words. Throughout the book the reader is disregarded. It is emphatically a scanner's book. With this complaint we may, we think, trace an admission in the book that footists and stressists (i.e., reading stressists) hold the field. Indeed, for all verse there are two scansion: the scanners' and the readers'. All verse must pass with or without honours through the mill of scansion—if it does not, it is not verse; it is then ready for the reader (not the mere stressist), *who does with it what he pleases, according to his interpretation.*

Beyond this we dare not go; but this is sufficient. Both analyses are (as English things are) elastic; and neither the writer of this interesting volume nor anyone else may say to us that there is one, and one only, way of scanning and stressing an abnormal line. *For lex suprema. Caveat lector.*

*Exercises in English.* By H. A. Treble. 224 pp. (Nisbet.) 2s. 6d.—Mr. Treble introduces these exercises upon the analogy of the use of examples in mathematics. We are not sure that the analogy holds. Mathematical examples are hardly an elaborate apparatus divorced from subject-matter. Especially we object to the forty pages devoted to English literature, consisting of examination papers which by the nature of the case must be unrelated to the literature actually being read by the pupils using this book. Mr. Treble's analogy logically pursued would lead him to insist that English exercises should arise immediately from the English reading. On the other hand, we are far from thinking that the occasional use of his book might not be convenient. It is compiled with good sense and proportion, and contains all the devices to which attention must undoubtedly be paid if the teaching of English is to be systematic and progressive. In the teacher's hands it should be a distinct help in providing him with types of exercises which must be settled in detail by the circumstances in which he is placed. But we offer a friendly warning that the indiscriminate use of isolated exercises such as these will result in as mechanical and wooden a mode of teaching as the haphazard methods which we are trying so eagerly to replace.

*English as Spoken and Written To-day.* By M. M. Mason. 267 pp. (Nutt.) 2s. net.—This book is intended for foreigners; by means of idiomatic conversations and letters they are introduced to colloquial expression. Later they are provided with a series of examination papers in grammar, which seem to contain all the exceptions and difficulties which were familiar to the luckless examinees of fifteen years ago. The book may have a certain value to isolated students of great determination; as an instrument for teaching it is, we are glad to think, an anachronism. Had we to learn from it, we should forgo the laborious delight of learning English at all; had we to teach from it, we should promptly resign so strenuous a position.

*A Concise Etymological Dictionary of the English Language.* By the Rev. W. W. Skeat. xv+664 pp. (Clarendon Press.) Thick paper, 5s. net; thin paper, 6s. net.—Few words are necessary by way of welcome to this new and corrected impression of the 1901 edition of a work which has long since established itself as authoritative. The advancing publication of the New English Dictionary has thrown new light on the etymology of some words, and this has modified some of Dr. Skeat's former conclusions. If there is still a school library without a copy, now is the opportunity to repair a most serious omission. That there should be any pretence at teaching English without "Skeat" is almost inconceivable.

*Stormonth's Handy School Dictionary.* 257 pp. (Blackwood.) 7d. net.—This well-known dictionary has been thoroughly revised and enlarged. Its special features, as our readers are aware, are its etymologies and its cheapness. On the whole, the latter is more to be commended than the former. The type is small but clear, and in schools where price is a great consideration no better choice could be made.

*Exercises in Précis Writing.* By J. H. Vince. xv+66 pp. (Dent.) 1s. 6d.—This book may be taken as a public-school manual for "Army Qualifying" candidates. The sixty-six pages of the text are, of course, taken up entirely—save for one useful page of notes on the first exercise—with the material for the desired précis; but in some five pages of introduction ten useful rules are laid down and illustrated. For the purpose for which the book is designed it seems to us admirable.

### History.

*The English Puritans.* By J. Brown. vi+160 pp. (Cambridge University Press.) 1s.—Dr. Brown is well known as the author of the standard life of John Bunyan—a book which is not merely a biography, but a history of the times. It is therefore unnecessary to say that this little monograph is complete (within its limitations) as an account of English Puritanism. We can only wish that space had allowed Dr. Brown to emphasise more strongly—for no emphasis on this point can be too great in our general ignorance—the difference between Puritans and Separatists, and to point out the various ways in which Puritanism survived 1660. But, even as it is, all teachers who will give the time to read this little book will never after be able to speak as they do now in their teaching of the Stuart period.

*Wanderer and King.* By O. V. Caine. 367 pp. (Nisbet.) 1s. 6d.—This is a delightful story of adventure, in which the author, taking but small liberties with the historical characters and episodes, and adding others from his imagination, tells how Charles II. escaped from Worcester to France in 1651. We do not care generally for historical romances: they bore us by their caricature of the truth; but we could not refrain from reading this from start to finish. Fortunately, the author makes no attempt to make the language of his characters seventeenth-century English, and there are consequently no foolish mistakes in that matter. Boys and girls will find it a treat.

*Grant's Synopsis of British History.* 105 pp. (Glasgow: The Grant Educational Company.) 6d. net.—A "home-lesson book in the form of blackboard notes." It consists, therefore, of brief headings, which the pupil is expected to learn after a lesson is given. English and Scottish history are treated separately until 1603. Afterwards they are grouped together. We should think it would prove useful for elementary classes, especially in Scotland. By differences of type, it can be adapted for use in schools when they use the concentric system. There are useful tables and maps.

*The Making of England and the Empire.* Part I. By M. E. Hancock. 128 pp. (Stead's Publishing House.) 4d. net.—This is apparently the first part of a work which is intended finally to reach the present day, for it contains as frontispieces portraits of our present King and Queen. But this part reaches only the year 1087. It consists of a slight sketch of the history, interspersed with anecdotes, and poetical compositions, and with pictures drawn in outline, after the fashion of those in "books for the bairns," which are intended for drawing exercises. There are also suggestive questions and "some milestones"—i.e., dates—as well as maps. Altogether a very good groat's worth.

*A Short Analysis of Welsh History.* By W. J. Griffith. viii+126 pp. (Dent.) 1s. net.—The nature of this little book may be judged from the fact that it is one of a series known as the Temple Cyclopædia Primers, for it

combines the qualities of both primer and cyclopædia. It is small, and yet its story ranges from 55 B.C. to almost the present day. It is cyclopædic, for it seems to mention everything of any importance in Welsh history between those dates. This result is obtained by making it an "analysis," not a story. It is not easy reading, and the unfamiliar names are somewhat repellent to the mere "Sassenach"; but as a work of handy reference, with its maps and tables, we should think it would be extremely useful.

*Victoria the Good and Edward the Peacemaker.* 88 pp. (Blackie.) 4d.—"De mortuis nil nisi bonum"; and here is a brightly written "Story Book Reader" inspired with the universal enthusiasm which our people feel for their last two monarchs, written with an easy pen, and plentifully illustrated with good pictures, which will serve its purpose admirably as a sketch of recent royal history.

### Science and Technology.

*Wild Flowers as they Grow.* Photographed in Colour by H. Essenhigh Corke. With Descriptive Text by G. Clarke Nuttall. 197 pp. (Cassell.) 5s. net.—A distinguishing characteristic of this book is the excellence of the illustrations. The twenty-five plates are reproductions in colour of direct colour-photographs of common wild flowering plants; and in this respect they are, we believe, unique as illustrations in a book on plant life. Certainly no more faithful pictures could be produced than those which really adorn this book; and such a decided advance of pictorial representation in a book on botany will, we trust, meet with adequate encouragement. The plates themselves are well worth framing, and the publishers may perhaps consider it worth while to issue them separately in a portfolio for this purpose, but the text is so appropriate to the pictures that one hesitates to separate them. Both artist and author have combined to produce a very attractive and instructive work which should be the means of introducing many people—both old and young—to wild flowers of the wood and wayside, and of stimulating the study of plant life. The book merits a wide sale and high appreciation.

*The Natural History of Coal.* By E. A. Newell Arber. x+163 pp. (Cambridge University Press.) 1s. net.—The teacher of geography will do well to read this book. It presents in an attractive manner the results of modern research into the origin and nature of coal of different geological ages. Though it appeals particularly to students of geology, the book will serve a useful purpose in the reference library which is now a common accessory to the geography room.

*Familiar Wild Flowers.* Figured and described by F. Edward Hulme. xviii+184 pp. (Cassell.) 3s. 6d.—The late Prof. Hulme's books on wild flowers are so well known that it is unnecessary to repeat the praise which has many times been accorded to them. This is the ninth and final volume of the series, and, like its predecessors, it tells about the genus and species, the folk-lore and poetry, the commercial value and so on, of each of the plants it attempts to describe. The coloured plates are well up to the standard of previous volumes in the series.

*The Teaching Botanist.* Second edition. By Wm. F. Ganong. xii+439 pp. (New York: The Macmillan Company.) 5s. net.—No teacher of botany can afford to neglect this manual, which has been rewritten almost throughout, and brought thoroughly into line with modern ideas of botanical instruction and the results of modern

research. Part I. consists of chapters discussing the educational value of botany, and the methods by which this value may be realised most completely by the careful selection of apparatus, books, and other aids. Incidentally, it contains an excellent bibliography. The concluding chapter of this section, "On some common errors prejudicial to good botanical teaching," is a particularly useful corrective of the loose terminology and reasoning to be found in many elementary text-books. Part II., which deals with the broader aspects of morphology, physiology, ecology, and classification, is also stimulating in a high degree, since it clearly enunciates the fundamental principles on which sound progress in each of these subjects depends.

*Geology.* By J. W. Gregory. 140 pp. (Dent.) 1s. net.—As a pithy statement of current interpretation of the main problems of geology, this little book is invaluable. Packed full of facts arranged with the skill of a master of his subject and the art of teaching it, it is an admirable example of the latter-day "primer" of science. By a slip, the amount of sulphate of lime in sea water is greatly overstated on p. 50, and on p. 110 sponges are classified with the coelenterates.

*The Building and Care of the Body.* By C. N. Millard. x+235 pp. (New York: The Macmillan Company.) 2s. 6d.—The good qualities shown in Mr. Millard's earlier book on hygiene, "The Wonderful House that Jack Has," are no less conspicuous in the present reader, which is obviously designed for younger children. The precepts of health are stated in a manner which children will find both convincing and attractive, and are emphasised by an abundance of illustrations of unusually high quality.

*Story Lessons in Plant Life.* By Margaret Hardie. 53 pp. (Charles and Dible.) 2s. 6d. net.—"Story lessons" in nature-study are in general very dreary and futile, because their authors so often lack the necessary combination of imagination and scientific knowledge. This book is an exception which we are glad to welcome, and to recommend without reserve to teachers of young children.

*British Journal Photographic Almanac, 1911.* 1348 pp. (Greenwood.) 1s. net; cloth, 1s. 6d.—We congratulate the editor upon the successful volume which forms the jubilee issue of this annual publication. The text of the volume occupies the central 500 pp., the remainder consisting of trade lists of the leading manufacturers and dealers. The subject of the leading article, by the editor, is appropriately the story of the *British Journal Almanac*. Other items are an epitome of progress during the year, recent novelties in apparatus, formulæ for the principal photographic processes, developing formulæ of the leading plate and paper makers, and chemical, exposure, and optical tables. The volume is a most serviceable aid to photographers and to photographic societies.

*A Practical Course in First Year Physics.* By E. T. Bucknell. 124 pp. (Mills and Boon.) 1s.—Teachers will find this to be satisfactory for a first-year course of physics. It contains a large amount of experimental work, restricted to preliminary measurements of length, area, volume, weight, density, pressure in liquids and gases, and of time. Additional exercises are inserted at various intervals for the benefit of the quicker boys of a class.

*A Course of Practical Physics.* By E. P. Harrison. 194 pp. (Longmans.) 4s. 6d. net.—This course is practically identical with that designed for third- and fourth-year students in the Presidency College, Calcutta.

It is based upon the syllabus of practical physics for the B.Sc. degree of Calcutta University. The course consists of seventy-two experiments, each receiving complete theoretical treatment. A knowledge of the calculus is required. The volume can be strongly recommended either as a guide in itself to students taking an advanced course of general physics, or as a book of reference in the laboratory.

*The Young Electrician.* By Hammond Hall. 289 pp. (Methuen.) 5s.—In his preface the author states that this book pretends to no higher aim than that of affording instructive amusement to intelligent boys. From this point of view the book is a success. The author chats to his reader upon most branches of the subject, ranging from the knowledge of ancient times to wireless telegraphy. Frequently the reader is encouraged to try simple experiments for himself; and here arises the danger of the popular type of book on a practical science, which the uninitiated may attempt to study without the aid of experimental demonstration. A few points need careful revision. Thus, on p. 98, the Bunsen cell is stated to consist of a block of carbon standing in dilute sulphuric acid, and a zinc cylinder in strong nitric acid! Fortunately, a few lines further on the author advises the reader to have nothing to do with it anywhere; but his advice is not due to the faulty instructions, which would lead to confusion, if not to disaster! On p. 105 the reader is cautioned not to splash sulphuric acid upon his face or upon any other object of priceless beauty. Here we seem to have science and humour hand-in-hand.

*A Text-book of Physics.* By H. E. Hurst and R. T. Lattey. 638 pp. (Constable.) 8s. 6d. net.—The scope of this volume is represented primarily by the Preliminary examination in physics in the Oxford Natural Science School, but certain additional matter has been introduced to render it suitable for other examinations. The treatment of the subject is quite elementary, no mathematics beyond trigonometry being required, and the rudiments of this are given as an appendix. The volume is fully illustrated, and for the most part the illustrations are quite new. Each chapter terminates with a good selection of examples, most of which are taken from stated examination papers; but no answers are given. In the index, references are given to paragraphs in the sub-sections of the volume; we do not consider this method so convenient as that in which references to pages are given. On p. 158 a glass flask is used for a direct demonstration of the temperature of the maximum density of water. It is quite probable that, at temperatures near to 4° C., the contraction of the glass will neutralise the effect due to that of the water. It would be better to have one-seventh part of the flask occupied by mercury, so as to give approximately a vessel of constant capacity. Apart from these minor points, the volume is quite trustworthy and attractive.

#### Art.

*National Competition of Schools of Art (1910).* Report of the Examiners and List of Students Rewarded. 71 pp.; 52 plates. (Wyman.) 3s.—The fact that a movement is on foot for the abolition of the national competition among schools of art lends additional interest to the report of the examiners on the competition of 1910. Whether a large part of the excellent work submitted would be produced without the incentive of the competition, or whether, on the other hand, the time spent in bringing the work to the pitch of competition standard could not be more profitably employed, are among the

questions which are agitating the minds of those concerned. An idea of the scope and popularity of the competition may be gathered from the fact that, from 370 schools of art, art classes, &c., 13,186 individual works were submitted for competition. Of these, 1,874 received awards or were commended by the examiners, in the following proportion: gold medals, 14; silver medals, 94; bronze medals, 206; book prizes, 497; commended, 1,063. The examiners' reports form instructive and occasionally entertaining reading. From the tenor of the reports, one may gather that, broadly speaking, the general quality of the work shows a gratifying improvement, though, at the same time, there is much that apparently deserves the severe condemnation which it receives. In their report on drawing from the antique, the examiners say that "they must again report the weakness exhibited for the most part in a very essential study, which is far too much repudiated in certain art circles." The pre-eminence of Birmingham (Margaret Street) School of Art is very marked in the department of applied design, and the school fully merits the eulogium passed upon it by the examiners. The numerous illustrations in the report of selected works from the competition reveal a very high standard of excellence, and at the same time show in many cases how narrow is the line which divides the *bona fide* student from the professional craftsman.

*Hand Loom Weaving.* By Luther Hooper. 338 pp. (Hogg.) 6s. net.—"Hand Loom Weaving" forms the seventh of the Artistic Crafts Series of Technical Handbooks edited by Prof. Lethaby. The general aim of the series is to foster the practice of the artistic handicrafts, to set up a standard of quality in crafts more especially associated with design, and to further the claims of artistic craftsmanship as a means of livelihood. The present volume demonstrates the progress of weaving from its earliest known beginnings to its highest development as an artistic craft. The form and construction of the loom and the methods of carrying out the various processes are admirably illustrated by line drawings, whilst towards the end of the book are numerous collotype reproductions of ancient and modern textile fabrics. In the author's opinion, the best weaving was done in the days of the hand loom. The introduction of the power loom and the Jacquard machine marks the transition of weaving from an artistic craft to a mechanical process, with corresponding detriment to the design and degeneration of the weaver as a craftsman. Mr. Lethaby is optimistic enough to believe that the present century will see a revival of interest in design and workmanship. If he is mistaken, the fault will not lie with the projectors of this excellent series of handbooks.

*A Manual of Drawing.* By W. W. Rawson. 107 pp.; xvi plates. (Longmans.) 2s. 6d.—This manual is intended for the use of teachers of drawing in elementary schools, and consists of a series of specimen lessons on severely orthodox lines, supplemented by a wealth of wise counsel and appropriate illustration. Teachers who feel the need of expert guidance in the organisation of their drawing courses would be well advised to follow the lines here so ably laid down by Mr. Rawson.

*Paper Cutting and Modelling.* By Bernard V. Pring. Two vols. (Pitman.) Junior, 1s. 6d.; Senior, 2s.—These admirable little books on paper cutting and modelling should prove acceptable to teachers in infant schools and junior departments. The volumes deal exhaustively with the subject in its relation to junior and senior classes respectively, and contain many interesting and ingenious

exercises, carefully explained and abundantly illustrated. Much stress is laid on the importance of this kind of work as an introduction to the handicrafts, and on its value in correlation with other subjects, such as nature-study, mathematics, and so forth.

#### Miscellaneous.

*English Melodies from the Thirteenth to Eighteenth Century.* One hundred songs. Edited, with an Introduction and Historical Notes, by Vincent Jackson. Many decorations by Herbert Cole. lii+207 pp. (Dent.) 7s. 6d. net.—This handsome song-book gives a survey of English minstrelsy by means of a clear, well-concentrated account of the subject and a finely chosen group of the time-honoured melodies dealt with. Mr. Jackson gives Byrde's and many of the original accompaniments which properly belong to the songs, and where it has been necessary to furnish something new it has been done with scrupulous taste. The choice of melodies is beyond praise. Here Dowland, Campion, Purcell, Pelham Humfreys, and others are associated in honourable company for the first time. Nothing is admitted which has not an important place in minstrelsy, or unless, indeed, it now gains one by sheer merit. Mr. Jackson had one conspicuous advantage over earlier writers in that he has been able to examine thoroughly the claims of recent folk-song collectors. As one might anticipate, such an investigation wins more recognition in the introduction than in the music examples. Yet this side of the subject has an instructive illustration in the country version (culled from Dr. Vaughan Williams) of "There was a Jolly Miller Once." Mr. Jackson's songs are all singable, a no small commendation for a volume which treats of songs from the thirteenth onward to the eighteenth century. Bases looking for something fresh will be fortunate in John Bannister's seventeenth-century "He that is a Clear Cavalier," which has a ringing melody and good accompaniment. Sopranos will delight in "See the Chariot at Hand," a song (of 1615) which curiously preserves the cumulative manner of Ben Jonson's procedure in the production of the poem which first appeared as "Have You seen the White Lily Flower?" and grew, stanza by stanza, to the form it now has. The "Knotting Song" of Purcell, and Robert Jones's "Love Wing'd my Hopes," suit the same voice. Mezzos are well provided for in the Campion and Dowland songs, which form a distinguishing feature of the volume. Tenors will find Purcell's "I'll Sail upon the Dog Star" is really theirs, unless baritones can sing a high A. All the songs are tersely annotated, while the first—"Sumer is icumen in"—is favoured with a facsimile of the original MS. A good frontispiece and numerous vignettes by Herbert Cole decorate this fascinating volume.

*Mr. Perrin and Mr. Traill.* By Hugh Walpole. (Mills and Boon.) 6s.—"Mr. Perrin and Mr. Traill" is a story of school life—not of the life of the boys, but of the masters and their wives. It is readable enough, though in parts disappointing, because there is a suggestion of going deeper than the surface in search of truth, but only a suggestion. The interest of the story and its value to schoolmasters lie in the picture it presents and the warning it utters. The picture suggests that Mr. Walpole has had experience, not of the happiest kind, as a master; indeed, many a man will feel that he himself knows, and knows too well, that "small square room that was inclined in the summer to get very stuffy indeed. . . . On the right wall, touching the windows, were two rows of pigeon-holes, and above each pigeon-hole was printed on a

white label a name. . . . On the opposite wall was an enormous shiny map. . . . The third wall was fitted with the fireplace, over which were two stern and dusty photographs of the Parthenon, Athens, and St. Peter's, Rome." The portrait of the master beast, the Reverend Headmaster, is so shadowy as to suggest that Mr. Walpole felt strongly, and dared not let himself go lest his tormentor should be recognised! Governors, headmasters, and masters should read and take warning. Many of their fads and faults are mirrored in these pages. The effects of life in a small community, and of strain on a variety of men, from "Old Pompous"—an earnest scholar of poor origin—to Traill himself, the latest product of the 'Varsity, are shown in all their ugliest forms. Let one of the masters speak: "Most of us have been here a great many years . . . most of us have lost our pluck. . . . We were not always cursing and fighting like beasts. We were not always without any decency or friendliness or kindness. We did not always have a man over us who used us like slaves. . . . I thought I was going to do things. . . ." And so they broke the spell.

*Wilson's.* By Desmond Coke. 278 pp. (Chapman and Hall.) 6s.—To point a moral, and yet avoid priggishness, is to achieve a success not often reached in school stories for boys. Dick Hunter's efforts to raise the reputation of Wilson's house from the low place it had always held, his alternating success and failure, the touch of weakness in his character due to a love of popularity, and the final victory over himself when he resolves to "play the game" and to stay in an uncongenial house, all assist in the production of an attractive hero without a trace of the snob. The house-master, Mr. Wilson, is a curiously ineffectual person, and his speech to the boys at the end of term is a masterpiece of tactlessness. The reader wonders constantly if any work was ever done at Sherborough. Though we miss the humour which was so marked a characteristic of Mr. Coke's "The Bending of a Twig," the tone of the book is healthy, and will appeal alike to masters and boys.

*All about Railways.* By F. S. Hartnell. viii+374 pp. (Cassell.) 6s.—The aim of the author of this book has been to provide the boy reader with the story of the railway without going into needless technical detail. Most boys of our own acquaintance have a keen interest in railways, which is early evidenced by the desire to acquire more or less elaborate models of engines, either clockwork or steam, tracks and rolling stock. Some are content with simply playing with such toys, but others are not satisfied until they are acquainted with every part and know exactly how it works. It is our experience that it is the latter boy who wants to read books dealing with the matter which has thus interested him, and he will not be contented with any book which does not succeed in satisfying, in some measure, his thirst for information. While the book before us contains a great deal of interesting information, we are afraid that much of it will have to be skipped by the average boy. This is owing to the lack of simple descriptive sketches throughout. A large number of illustrations, taken from photographs, are given; these are well reproduced, and are sure to be of interest; but we find page after page of matter descriptive of some important detail—for example, brakes—without any simple illustrations being attached which would enable the young reader to understand the author's meaning. The book is comprehensive and up-to-date in its information; it contains a chapter dealing with the Brennan monorail, and many of its sections, which are sufficiently well illustrated by the photographic views given, will be of great interest to boys.

*The Guild of Play Book of National Dances.* Part III. By Mrs. G. T. Kimmins. viii+80 pp. (Curwen.) 5s.—This volume, which contains a preface by the Bishop of London, is the third of a series issued by the Bermondsey University Settlement Guild of Play under the inspiring influence of Mrs. Kimmins. It should not only be possessed by every teacher of physical exercises and organised games, but should be a most useful help and guide to all those whose sympathies have been stimulated to brighten and uplift the lives of children whose only enjoyment seems to be found in such streets as those which surround the Bermondsey University Settlement. This volume is devoted to national dances. These have been chosen "after much thought because of their wholesomeness, their triumph, or their distinct racial value." They are intended for school or social use. The methods suggested have a high educational value. Stories or subjects under discussion are to be linked with songs, dances, and appropriate costume. For example, an Irish fairy-tale would be prefixed by an Irish song and Irish jig. We heartily agree with the editor that if this kind of play is carried out in the proper spirit it must lead to the growth of courtesy, chivalry, self-restraint, and modesty, and as the dances and games are planned for large numbers corporate spirit must result, and eventually make for good citizenship. While Part III. is complete in itself, it would be doubly useful if used side by side with Part I. Like its predecessors, Part III. is most suitable in size and shape for the piano. It contains admirable photographs of groups of children illustrating the various national dances and costumes. Excellent notes and descriptions are given throughout the book.

## CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

### Scouting for Boys in Secondary Schools.

I HAVE read with great interest Mr. Beeton's article on the above subject in your last issue. The question is one which, as he says, seriously calls for ventilation at the present time, only there are various obvious difficulties in the way of satisfactory discussions by correspondence in monthly publications, and it is not easy to arrange a representative conference of those interested, coming from distant parts; and yet, to my mind, this would be by far the most satisfactory means of really arriving at a common and practicable working basis in the matter.

While I am completely in sympathy with Mr. Beeton in his efforts to induce more secondary schools to take up the cause, I think it is regrettable that he should endeavour to make a case for the introduction of a new and, practically, untried feature in the social life of secondary schools by unduly disparaging institutions already in force. It is extremely doubtful, so far as my experience goes, whether games and social institutions in secondary day schools are in such a parlous condition generally as he would have us believe. Moreover, what evidence is there to prove that when once the novelty of the external attractiveness (one undoubted cause of its popularity) of scouting has worn off, the same difficulties would not arise in that department of out-of-school interests by which, as

he tells us, other existing departments are so seriously handicapped?

Mr. Beeton further alleges that games constitute an expensive luxury, but somewhat illogically suggests, in the same breath, that games subscriptions should be transferred to the Scouting Fund. Personally, I do not think, so far as I am able to judge, that it could be seriously maintained that scouting is a less expensive form of pastime than cricket and football. As to the type of parent who grumbles at games subscriptions, I do not think that the transformation of games into scouting would gild the pill for such.

However, I do not wish to confine my letter to destructive criticism on small points, but rather to state the difficulties which some of us have had to face, and the earnest desire we have of obtaining help in the solution of them. Mr. Beeton does not, in his article, treat of the situation that has undoubtedly arisen in more than one secondary school, viz., the voluntary enrolment of individual members of the school in Local Patrols, independent of any connection with the school. Now it is expressly stated in "Scouting for Boys" that the scheme is not in any way intended to be in opposition to any existing organisation, but, as many could testify, this is just where the shoe is pinching. The life of a boy who is endeavouring to do his duty fully and efficiently by his school, and to be a thorough-paced scout at the same time, is simply crowded out.

It is pathetically amusing to read that the work, in any case, must not suffer, because the plain truth is that it is the work which naturally suffers first. The lives of such boys are simply one more lamentable illustration of the old adage, "*Qui trop embrasse, mal étreint.*" The glamour of a night march is naturally more attractive than the routine of home work, and yet, as most of these boys will have to earn their living in a routine manner, it is vital that any pursuit which gives them a distaste for routine should be carefully guarded and kept within proper limits. In addition to scouting proper, if I may use the expression, there are a host of other interests and occupations included under the title, most of which were already cultivated in secondary schools, under different names, perhaps, before the introduction of scouting. To illustrate this point, I may cite the hypothetical case of a science master who has perhaps devoted years to the development of a school field club, and may, naturally, be not a little hurt when he finds himself suddenly bereft of half his followers, for whom the magic of the word "stalking," under an outside management and in costume, is too strong an attraction.

A further disastrous appendage has arisen in the shape of evening classes, and we have boys of eleven and twelve from the secondary school being initiated into the mysteries of ambulance work and shorthand at hours when they ought to be comfortably between the sheets. In these circumstances it is very desirable and necessary for headmasters to serve on local committees, and in that capacity I have not hesitated to protest strongly against such excess of zeal running to folly. In a word, each district needs a common platform for the frank and free discussion of all these difficulties with the view of making an attempt to arrive at some mutually satisfactory basis. At present there is unquestionably much chaos and misunderstanding which nothing but patience and earnest co-operation can remove.

To sum up, my own opinion on the main question is that it would be most inadvisable in any way to disturb

boys who are reaping benefit out of the corporate life of the school, as already existing, by sweeping away games and other societies, but that a troop might certainly be raised out of the number of those who obviously need some new incentive to stir them up, though it would be difficult for any school with fewer than a hundred boys on its register to carry out this programme effectively. I fully agree with Mr. Beeton that the troop so formed should attach itself to local units of boy scouts and join them, whenever possible, in out-of-door scouting, in order to controvert at all cost any possible charge of exclusiveness.

These were the ideas which I had in view myself, but the ground was unfortunately cut from under my feet before I had time to mature or carry them out, and I have neither the desire nor the right to interfere with existing units. May I, in conclusion, express the hope that THE SCHOOL WORLD will open up its columns to a correspondence on this subject, which is a very pressing and perplexing one just at this time, as I am sure that there must be many who, like myself, would be glad to have the subject well aired in a representative scholastic magazine and to enjoy the advantage of the views and experience of others?

Cecil H. S. Willson.

Lymm Grammar School, Cheshire.

MR. WILLSON's sympathetic letter raises several interesting points to which I am glad to have the opportunity of replying. With regard to the comparative expense of games and scouting, a subscription of, say, half-a-crown a term would be sufficient to keep a troop of scouts in affluence, whereas there are grammar schools in which twice as much is exacted for cricket and football, and the subscriptions by no means represent the whole of the outlay. One grammar school—in no sense a public school—has recently expended so much as £1,200 on a new cricket ground.

I have found from my own experience that, while some parents are equally as apathetic towards the scouting as towards other school institutions, others, realising the effect the scout code has on their boys' characters, have enthusiastically supported our efforts in every way, even by offers of camp equipment and unsolicited donations of money, as well as by personal encouragement of the boys through attendance at parades and manœuvres.

My remarks were not intended to apply to those schools at which attendance at games is voluntary, but to those in which it is compulsory and takes up virtually the whole of the boys' leisure, including both weekly half-holidays, leaving no time for other pursuits. The authorities of such schools obviously cannot sanction the enrolment of their boys in outside troops, although, of course, it is very difficult to prevent it; hence the whole difficulty, out of which my suggestion is intended to find a way. The other points Mr. Willson mentions, such as night marches and evening classes, are an additional reason for the formation of a troop within the school. I quite agree with Mr. Willson that these are questions on which the advice of a schoolmaster may be very beneficial to local scout associations.

In cases where, for instance, a field club is already in existence, I see no reason why other members of the school should not join with the scouts on expeditions for nature-study. Such institutions as these should not interfere, but correlate, with the scouting.

In conclusion, I should like to point out that I do not wish to propose sweeping away school games, but merely



to suggest that those boys whose needs are better met by the scout movement should be encouraged by the school to join it, and that they should be partially or wholly exempted from compulsory games in order to give them time to become proficient as boy scouts.

HAROLD F. BEETON.

### Square Root and Geometrical Appeal.

DR. NUNN's excellent article in your January issue on a graphical method for square root is well worth considering apart from the particular point there illustrated. The article and the discussion provoked thereby suggest generally the advantage of a system of teaching mathematics which will lead pupils as well as teachers on to the discovery of truths, and also the value to a teacher of the work of the early pioneers. To take

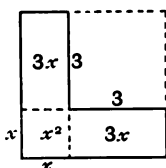


FIG. 1.



FIG. 2.

a very simple instance—the solution of a quadratic equation such as  $x^2 + 6x = 55$ —closely connected with this graphic method for square root.

Starting with the L-shaped figure (Fig. 1) which represents  $x^2 + 6x$ , or 55, the pupil is easily led on to the positive root thus:

$$\begin{aligned} \text{Area of L-shaped figure} &= x^2 + 6x = 55 \\ \text{„ corner square (dot:d)} &= 9 \\ \text{„ whole figure} &= 64 \\ \text{Side of whole figure} &= 8 \\ \therefore x = 8 - 3 &= 5 \end{aligned}$$

It is a simple matter to supplement this treatment when desirable. By the above method, the phrase “completing the square” has a far more real meaning than the usual method of approach gives, and the whole process is crystallised by a simple diagram, just as in the case of square root. It is, however, not a twentieth-century but a ninth-century method. Mr. W. Rouse Ball gives as the author the Arabian mathematician Alkarismi. These old workers are frequently more suggestive to teachers of the young than are modern writers, who are so anxious to work in the negative that they forget its history and comparatively late development, together with all that this means to a thoughtful teacher.

May I add another similar example of this instant appeal of a geometrical illustration?

Starting with a square of side 1 unit (Fig. 2), we add successively the L-shaped figures, the areas of which the pupil quickly perceives<sup>1</sup> to be denoted by the numbers 3, 5, 7 . . . . Thus the whole figure—at any stage—represents the sum of the important series 1, 3, 5, 7 . . . . which from the figure is clearly  $1^2, 2^2, 3^2, \dots$  for 1, 2, 3 . . . . terms respectively. It requires little imagination and reasoning for a young pupil to see that the sum of the series to  $n$  terms is  $n^2$  (also that the difference between the sum of the first  $n$  and of the first  $m$  terms is  $m^2 - n^2$ ).

It occurs to me that one might raise the question as to

the wisdom of teaching square root at all in the ordinary school course. Its justification seems to me to lie in its significance for other parts of school mathematics—even in the early teaching of logarithms, for instance, unsuspected as its use in this connection may be.

J. G. HAMILTON.

### “Pages Choies de Dumas”

I SHOULD be obliged if you would allow me to thank your reviewer for his reply to my letter in the March number of THE SCHOOL WORLD, but I fear he is under some misapprehension. The whole point of my letter was the following: the word *paysan* is transcribed in the vocabulary to “Pages Choies de Dumas” as [pei:zā]. Your reviewer stated in the January number in his criticism of the book “that to make the second vowel of *paysan* long is, of course, a mistake.” I replied pointing out that the second vowel, viz., *i*, is given long in the dictionary of Michaelis-Passy, and that Prof. Passy had confirmed this pronunciation in a private letter to me. In answer to this your reviewer now says: “On p. 43 of ‘The Sounds of the French Language’ I find *tyran* transcribed with a short nasal vowel”; but what has this to do with the length of the *i* in [pei:zā], which is alone the question at issue? I quite agree with your reviewer that the final nasal vowel in [pei:zā] is short, and it is given as such in “Pages Choies de Dumas.” It was not the length of this vowel which I understood him to criticise, but the length of the *i*, which I think I have proved was given correctly.

With regard to the other points raised by your reviewer, I am quite willing to yield to his argument that the use of a special sign for half-length is often of great value, and I have employed it myself in my transcription of Kirkman's “Première Année.”

D. L. SAVORY.

25, Eglantine Avenue, Belfast, March 9th.

I READILY acknowledge my mistake as to *paysan*, but here, too, the sign of half-length seems to me better. That the second vowel should be really long in this unstressed position I cannot believe.

THE REVIEWER.

## The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES.

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<sup>1</sup> This work is usefully preceded by an inductive method of getting to the square of  $n+1$  much as given on pp. 17-18 of Clifford's “Common Sense of the Exact Sciences”—a book full of valuable hints for teachers.

# The School World

A Monthly Magazine of Educational Work and Progress.

No. 149.

MAY, 1911.

SIXPENCE.

## THE QUALIFICATIONS OF INSPECTORS OF SCHOOLS.

WITH the ethical, or rather the ethico-political, problem raised by a public reference in the House of Commons to a communication not intended for the public eye, we are not primarily concerned in this place. We merely remark that the fiercest political foes of Mr. Balfour, for instance, are among those who believe in him most implicitly as the soul of personal honour; that Mr. Balfour seemed not a little astonished at the agility with which, on the occasion in question, Mr. Runciman bestrode the high moral horse; and that, on this particular point, what is good enough for Mr. Balfour (not to speak of most other people) is good enough for us. Frankly, we do not regard this question as a purely ethical one in the ordinary acceptation of that term. We prefer the double-barrelled adjective employed above. That is one reason why we proceed, with the clearest of consciences, to take advantage of the fact that the so-called stolen goods happen to lie within our grasp.

We cannot quote the whole of what is now known to newspaper-readers as *The Notorious Circular*, but we give a taste of its quality:

Apart from the fact that elementary teachers are, as a rule, uncultured and imperfectly educated, and that many, if not most of them, are creatures of tradition and routine, there are special reasons why the bulk of the local inspectors in this country should be unequal to the discharge of their responsible duties. It is in the large towns which had school boards before the "appointed day" that the majority of the local inspectors are to be found. . . . In these towns the local authorities have inherited from the school boards not merely a vicious system of local inspectors, but also a large number of "vicious" local inspectors. As compared with the ex-elementary teacher, who is usually engaged in the hopeless task of surveying, or trying to survey, a wide field of action from the bottom of a well-worn groove, the inspector of the public-school and "Varsity" type has the advantage of being able to look at elementary education from a point of view of complete detachment, and therefore of being able to handle its problems with freshness and originality.

The communication containing these strong expressions of opinion was printed as an official document, was signed by Mr. Holmes, who at the time held the post of Chief Inspector of Elementary Schools, and was circulated among the Board's inspectors throughout the length and breadth of the land. These inspectors were enjoined to use their influence with the local authorities to secure that the local inspectorate should, like the Board's inspectorate, be recruited from the ranks of public-school and university men. The President of the Board has declared that the circular was issued without his knowledge, that it does not represent the Board's policy as conceived by him, and that he has taken steps to prevent another such occurrence. His critics reply that they are far from objecting to the occurrence in itself; what they object to is the spirit which obviously animates the Board's policy, notwithstanding his disapproval. The Permanent Secretary, the official who assumed responsibility for the issue of the circular, and apparently knew all about it, has, through the President, expressed his regret for an error of judgment. But faulty judgment in the mere issuing of a document is one thing; faulty judgment in respect of the very pith and marrow of that document's contents is quite another. It is to the former that the secretary pleads guilty, not the latter; and so the whole question comes up for public discussion—what are the qualifications to be reasonably looked for in an inspector of schools, whether appointed by the central or by a local authority?

Readers of this magazine—most of them presumably teachers—are probably members of various British universities, old and new. Those who are members of the two older universities cannot be expected to waive or to belittle any legitimate advantage which their position gives them in the competition for the higher posts in the profession. Such superhuman virtue is out of the question. Besides, there are certain senses in which, speaking quite generally, the advantage is far too real to be denied by any fair-minded man. On the other hand, no fair-minded Oxford or Cambridge man, whose academic or scholastic experience has brought him into contact with members of other universities, would, we believe, commit himself to the extravagant assumption that there exist in this country no other sources of learning and culture and good manners than that of which he has availed himself. Only a person steeped to the finger-tips in prejudice would

so far fly in the face of facts. If this be granted, we may all perhaps consent to reason together for a few moments, and ask ourselves what warrant, if any, does exist for assuming that a certain mode of education is an essential condition of fitness for the work of school inspection and administration.

It will be profitable to take a glance backwards, because no one, we imagine, is competent to form a judgment on the merits of the case unless he looks at the effects of the central authority's policy upon the schools during the last thirty years or so. The present writer can look back over many years of official experience, during which he has been brought into personal contact with a large number of inspectors, and he desires at once to subscribe to all, or nearly all, the nice things that have ever been said about the ability with which, according to their lights, they have, as a class, discharged their difficult duties. It is, however, with the nature and appropriateness of the said lights that we are here concerned.

Now the pages of history which record our national doings in education during many years following the Revised Code will always be disfigured by that hideous phrase, "payment by results." The phrase sounds harmless enough in a way, and not alone to the shopkeeping mind, for it has formed the subject of many an official and inspectorial joke. That was just the trouble. Only those who actually wore the shoe knew where it pinched. Only those who actually worked in the schools knew then, or know now, the appallingly hopeless "results" on the intellectual side, and the still more hopeless "results" on the moral side. The elementary-school teacher has many virtues, though they are sometimes claimed for him with unnecessary and harmful insistence. But he, too, is human; and the temptation to illicit practices, when his daily bread was at stake, was often far too great to be resisted. Now who were the men who conceived, elaborated, and administered that system of moral and intellectual rottenness? *They were men—good and honourable men—of the very same type as those to whom the notorious circular would again, and in an equally exclusive sense, commit the destinies of our elementary schools.* We know that many of them disbelieved in the system they were called upon to administer, and we know that our historical parallel may be criticised. But we do not think it important to introduce qualifications, because we know also that our parallel involves a most serious element of significant truth. The power of officialism has certainly not been diminished by the Act of 1902, and we ask in all fairness whether it is expedient to place that power *entirely* in the hands of men whose experience has lain in regions wholly remote from the schools in question. Is not the lesson of history plain enough?

If further evidence were needed of the disastrous effects of unfettered control of the elementary-school system by the public-school and university type of man, it could easily be sup-

plied. The days when such control was practically unchallenged were days when wretched little boys of seven were required, as the sum and substance of their English instruction, to pick out nouns, to which at eight they added verbs, and at nine adjectives, and so on through the wholly silly rigmarole. And the classically trained inspector—we believe Matthew Arnold himself—would aver that what he supposed the Latin grammar to have once done for him, this "discipline" of nouns and verbs might do in some degree for the small denizen of a city slum. Other branches of the curriculum fared similarly. History was an easy case; for were there not just enough periods of English history to cover the later years of elementary-school life? Geography was not so bad, either; for after a course of rote-learned definitions (which at one time had to be *written* by children of eight, who therefore had to have the spelling of words like "peninsula," "meridian," and "longitude" somehow knocked into them), and after the geography of England had been "done," had not a kind heaven provided just five continents to fit into the five remaining years of school life? Such were the slapdash principles upon which schemes of instruction were based.

It may be said that we are unfairly drawing our instances from the Dark Ages. In a sense this is only too true, but not in the chronological sense. Our instances date from a time when thousands of the men and women at this moment in charge of our elementary schools were gathering experience which still inevitably determines to some extent the character of the work they are doing. There are some blunders which cannot be lived down in a year, nor in twenty years. But on paper, at any rate, the school curriculum is vastly improved. And at whose instance has this improvement been effected? We fully admit the probable influence of such a man as Mr. T. G. Rooper—a rare and conspicuous exception among inspectors. But, on the whole, can recent advance be regarded as a feather in the cap of the official of the approved type? We think not. We hold no brief for the Teachers' Union. Our admiration for that body is not of the unmixed variety. But it is the barest justice to say that the Teachers' Union knocked, nay, banged, at the official door for years before that freedom was secured which is now on all hands recognised as absolutely essential to educational vitality and progress.

The system devised by officials of the university and public-school type bred suspicion, we had almost said hatred, because those officials *could* not see that up to a point the welfare of the child and the reasonable freedom and comfort of the teacher are inseparable. How should they see it? Practically not one of them had ever tried the job himself. It was the pertinacious insistence of the teachers, and that alone, which introduced a new spirit into our elementary-school system. But we live in days when officials are again as strong as they were thirty years ago, for increased

numbers have not brought increased strength to the body of certificated teachers. Is it not all the more essential that the inspectorate should not be filled entirely by men of the type desiderated in the circular? Are not the dangers too great and too obvious?

There is, we believe, a further reason for the strained feeling which has traditionally existed between the inspectors as a body and the teachers as a body. In a general way we yield to none in our high estimate of the typical public-school and university man. At his best—and we trust he will not feel insulted by our praise—he is among those who go to make up the salt of the earth. But along with his breadth of view, and his fine sense of personal honour, there too often goes an unwillingness, or perhaps an inability, readily to attribute an equally keen sense of honour to those who have not enjoyed his advantages. His consciousness of a mission to his supposedly less favoured fellow-citizens amounts almost to that species of spiritual pride known as priggishness. The narrowness of the elementary-school teacher has too often been described in terms which it is surely a mistake to use respecting a whole class, and we expressly guard ourselves from the same mistake in characterising another class. But we think it right to point out to the author of the circular, whoever he may be, that there is more than one sort of narrowness in the case, and that when the two sorts meet, a feeling of intense irritation, hardly for the public good, frequently follows. Again we ask, is it not well that, at any rate, a moderating influence should be at work in the counsels of educational officials?

But destructive criticism is not in itself enough, and we desire, in conclusion, to make our humble contribution towards the solution of one of the problems suggested by the circular—the problem to which those who have the welfare of the schools at heart ought now to be directing their attention. The great and important question as to the powers accorded to permanent officials of a department we must leave to others. But what, we may ask, are the qualifications that ought normally to be looked for in a school inspector? *First*, he should, we think, usually be a university graduate of some distinction, that is, he should usually hold an honours degree. We say “usually” because we do not think it fair or reasonable to shut out absolutely the possibility of admitting a distinguished elementary-school master to the ranks of the inspectorate of elementary schools. *Secondly*, we think that an inspector should be a man whose prudence, tact, and wisdom in dealing with men (and women) and affairs have been brought to a sufficient test before he assumes office. *Thirdly*, he should have laboured for some time, we think at least a year, in the sort of school he proposes to inspect; and, if modern educational thought goes for anything at all, he should have made some study of the physical and mental nature of the child. Otherwise, whatever deference the teachers may have to yield to his official position, they will never really respect his

opinions, except in those rare cases where his sympathy and insight amount to positive genius.

There is one case, however, in which no precautions will avail until women have their rightful position in the inspectorate. There is surely no more inexpressibly ludicrous sight in all the world than that of a clever young gentleman from Whitehall, of public-school and university antecedents, pretending to adjudge the value of the work done by a trained woman in charge of a class of babies in an infant school. But in the case of the ordinary elementary school, we think it right and good that a considerable proportion of the inspectors should (under the safeguards we have laid down) have been educated in the public schools, for the simple reason that we believe in the circulation of ideas and ideals, wherever they come from. One may say so much, and hold at the same time that the extreme policy of the circular, apart from questions of class prejudice, and taken in its strictly educational significance, is contrary to common sense. We know that there are some who would still murmur the old tag about the place where Waterloo was won. We can only suggest that in these days people are apt to ask where Colenso was won—and lost!

#### THE COUNTY COUNCIL SCHOLAR.

**M**OST secondary-school teachers will watch with keen interest the result of the refusal of the governors of the University College School, Hampstead, to continue to receive County Council scholars. Public opinion is sharply divided on the subject, and both sides of the question have been somewhat plainly stated in the Press. The contention of the governors appears to be that they cannot afford to accept the scholars, since their presence in the school is preventing “the better class of pupil” from coming forward. The argument is familiar to the private schoolmaster. Many private schools the staff and equipment of which warrant them in claiming aid from the Education Authority make no approaches for a grant, well knowing that the conditions about admitting scholars would lose so many fee-paying pupils as would more than counterbalance any gain from the public funds. It is somewhat surprising to find the same state of affairs in the case of an institution of the character of that at Hampstead. The fees are high, and the County Council pays the ordinary fee for each pupil, so that the amount of money the governors stand to lose must be considerable. They must look forward to a very substantial increase in the number of fee-paying pupils to counterbalance this serious loss. For we are entitled to assume, from the very nature of the case, that all the school places are not at present occupied even with the help of the present scholars. It is true that the governors will have time to make their experiment without immediate loss, since it is not proposed to eject the County Council scholars actually in attendance, but merely to refuse to admit any more.

Whatever may be thought about the rights and wrongs of the change, it cannot be denied that the experiment will be valuable in putting to the test various theories about the effect County Council scholars have on the popularity of a certain class of select secondary schools. It will be noted that the experiment is being made under conditions that are very favourable to the contention of those who oppose the admission of County Council scholars to this class of school. University College School has now a new and excellent site and a capital suite of buildings. It has never bowed to the yoke of the Board of Education. It is placed in the very midst of a well-to-do, not to say wealthy, population. Everything is in its favour as an exclusive school. It is true that there is one danger. The population may prove to be too well-to-do and select, and may therefore prefer to send its boys farther afield to still more expensive schools. But, in any case, the University College School is now going to be able to present to its patrons an untainted roll.

It is only natural that in the circumstances the word "snobbishness" should be freely used in the discussion. But this is one of those question-begging words that are so troublesome in newspaper controversy. If a school frankly sets out to cater for a particular class of pupil, and is willing to take the financial risks without any appeal for public aid, there is surely no need to call names. Further, some at least of the parents who object to their sons mixing with the scholars are willing to accept the opprobrium of the term, and say, "If to be unwilling that my boy should associate with persons of that class is to be a snob, then a snob I am." This frank line of argument is not uncommon in connection with girls' schools, but it is rather remarkable that the first public revolt should come from the boys' side. Perhaps in the case of girls' schools open to County Council scholars the exclusive parents have avoided friction by not sending their daughters at all.

Looking at the matter now from the scholars' point of view, it is not at all clear that they have any real grievance. It is not likely to be maintained that the purely intellectual training obtained at University College School is any better than that to be had at a score of other schools in London; so the only loss to the excluded scholars must be in the social training they might receive among their class-mates from cultured homes. One wonders whether the scholars are likely to regret the loss of this intercourse with their social betters. Can they regard it as any hardship to be excluded from a society that is at pains to show that it does not want them? Many people believe that it is for the benefit of the community that there should be a free intercourse between the young people of all classes. It will not be denied that it would be to the advantage of the scholars to mix on equal terms with boys whose greater means give them a different kind of home-training. Everything that brings the scholars into self-respecting touch with the ordinary fee-paying

pupils is an advantage. But mere toleration of the scholars is no benefit to anybody.

The real point at issue, then, is the possibility of the scholars holding their own in their intercourse with the fee-payers. As a rule, in the mere intellectual class-work the scholars are not below the average. University College School has reason to be proud of the honours won by some of its scholars. It is true, however, that secondary-school teachers are gradually coming to the belief that, among the scholars sent to them, they are not getting the intellectual quality that they expect and require. It is being asked whether there are not too many scholarships being given. If there are not enough candidates of sufficient ability to do credit to the scholarships, then by all means reduce the number. But in the present instance any such change would fail to meet the case. It is a social question, and ought to be faced fairly.

Many teachers complain that scholars come to their schools so badly dressed that the other pupils resent it, and with the direct cruelty of youth make it quite plain that clothes mean something very important. Besides, the scholars are often not in a position to pay their way in connection with the various school clubs, with the result that they rather fall out of the social life of the school, and become a kind of uitlanders. It would be interesting to get the opinions of teachers on the desirability of having the maintenance grant paid through the school, and not directly to the parent. If this were done, the teachers could see that the money was spent in giving the scholar all the advantages of full membership of the school, the balance, of course, being handed over to the parent. It is clear that unless the scholar ranks on equal terms with his fellows in all the essentials he cannot get the full advantage of such a school as that at Hampstead. In schools of this type, therefore, the maintenance grant might be applied as suggested, while in some of the less exacting schools the present system might be retained. In any case, the scholars should be made to realise that their best interests require that they should form real social units in the school. May it not be that the greater quickness of girls in realising their social responsibilities accounts for the absence of open rupture in their schools?

## THE TRICENTENARY OF THE ENGLISH BIBLE.

By A. JOHNSON EVANS, M.A.

ENGLISH-SPEAKING people are this year celebrating the three hundredth anniversary of the translation of the Bible which is familiar, directly or indirectly, to all of us. The most uneducated have at least some knowledge of its contents, and many among us are acquainted with large parts of it, especially of the New Testament and of the narrative parts of the Old. The language has entered into our thought and speech in ways which it is not necessary now to illustrate. We need mention only the word

"sack" which has gone into every language with the story of Joseph and his brethren. Whether, therefore, we regard the book as authoritative, or merely as a monument of our language, we should be interested in this celebration and the events of which it reminds us.

The translation of 1611 was the last of a long series, the story of which goes back almost to the beginning of the nation. The destruction of libraries which accompanied the dissolution of the monasteries by Henry VIII. has deprived us of much evidence as to the ancient manuscripts, but enough remains to show that Cranmer was quite correct in speaking in 1540 of "Saxon" versions, and saying that "when this language waxed old and out of common usage, the Bible was again translated into the newer language." Sir Thomas More on one side, and Foxe the martyrologist on the other, bear witness to the same effect.

In the seventh century, Aidan and his fellow-workers in the north studied the Bible, and especially the Psalms, in English. Cadmon and his later imitators made metrical versions of many Bible narratives. Translations of the whole or parts of the Bible are said to have been made by the Venerable Bede, the scholar Alcuin, and King Alfred, to mention only well-known names. Some of these or similar versions still survive in manuscript, and students of mediæval English rely for their knowledge of dialects on the various versions of the Lord's Prayer and other parts of the church services, to say nothing of the wealth of devotional literature, like the "Aenbite of Inwit." How widely a knowledge of the Scriptures was spread in the Middle Ages may be seen in the "Vision of Piers Plowman," that anonymous work written by one man or by several in the lifetime of Chaucer. It contains hundreds of quotations from the Bible, many of them most quaintly used, and alongside of them are legends in connection with the life of Jesus Christ, which were in those uncritical days received as of equal authority with the canonical Scriptures. We no longer believe, *e.g.*, that Christ's side was pierced by Longeus, a "knight," or that the blood running down the spear cured him of blindness; but we have, perhaps, lost rather than gained by forgetting the story.

With the beginning of the movements which culminated in the great disruption of the sixteenth century, appeal was made more than before to the originals of Christianity; and when England was wearying of Avignonese Popes and the Great Schism, Wiclif published a translation of the Bible, made by himself and Nicolas of Hereford, and this was followed by John Purvey's revision. But so common were vernacular Bibles then that it has been plausibly argued that "Wiclif's" Bible was only the current orthodox version of the time. A century later, the Renaissance had given the knowledge of Greek to western Europe, and the art of printing had stimulated production. These together supplied weapons for the controversialists, and translations

of the Bible into English began to be issued, sometimes with comments in the margin. Such was Tyndale's version of the Gospels and the Pentateuch, and Coverdale's translation of the whole Bible in 1535. "Matthews'" Bible was published in 1537, and Taverner's in 1539. Henry VIII. had perceived the usefulness for State purposes of an English Bible; the first "authorised" version of the Scriptures was published under his auspices in 1539, and a copy ordered to be put in every church. But this "Great Bible" was too expensive for ordinary folk, and the popular Bible of Elizabeth's days was the "Geneva" or "Breeches" Bible, a translation by some of the English exiles during Mary's reign, and published in 1560. Still another translation was made in 1568, which is known as the Bishops' Bible, but this never took the place either of the "Great Bible" or the "Geneva." And thus, by gradual development (for each new version was largely dependent on its predecessor), we arrive at the translation of 1611, the only outcome, as "every schoolboy knows," of the Hampton Court Conference of 1604, where it was hoped that Puritans and their opponents would find a compromise on matters of liturgy, but where the negotiations broke down on the question of church government.

Again, as little departure as possible was made from previous versions (which partly accounts for its quaint and somewhat archaic phrasing), and, at King James's suggestion, no marginal comments were made. The best available knowledge was brought to bear, and the result was what we all know, or should know, so well. How our Puritan forefathers used the new translation, and, according to some, abused it, is well known to readers of "Hudibras." It is said that when they quoted it in Parliamentary debates, John Selden, the lawyer and theologian, used to say, "It may be so in your little pocket Bibles, but in the Greek (or Hebrew) it is otherwise."

It was not only the Puritans, but their opponents as well, who resorted to the Bible for arguments and for sympathy. Archbishop Laud spoke often of "the beauty of holiness" with a more correct interpretation of the phrase than some moderns make. Charles I. was believed to have written "Eikon Basilike," and is known on one occasion to have asked for a certain Psalm in the Presbyterian service which his Presbyterian "hosts" compelled him to attend. And if the Puritans produced "Paradise Lost" and "Pilgrim's Progress," their opponents could appreciate "Absalom and Achitophel." In the century and a half during which all English politics turned on church questions, the Bible was naturally the manual *par excellence* of politics.

Since 1611, we have, except for the Revised Version of 1880-4, officially stood still. As the settlement of our English liturgy and church government by Elizabeth has remained unaltered except during the "times of confusion" of 1643-1660, and has gained the affections of English people all the more for that interruption, though

at the beginning the former was described as a "Christmas game," and the latter regarded as mere schism; so, though the translation of 1611 was at first but one among many experiments, and won its way only gradually against the Geneva Bible, it has now entwined itself round the hearts of Englishmen. For the great majority of us the "Authorised Version" is the Bible we know, and, along with the Psalter of the Prayer-Book (which is that of the "Great Bible"), it holds a place in the affections of Englishmen which bids defiance to all proposals for alterations of the sacred text. Translations of the New Testament into modern speech have been published privately, the most successful of them being Dr. Weymouth's and the "Twentieth Century" New Testament, and there have been put forth translations of Job and other single books, but these have not by any means won general acceptance or more than a subsidiary place.

Three hundred years have passed since 1611, and not only has "more light broken out of God's Holy Word," as John Robinson of Leyden anticipated it would, when he bade farewell to his flock as they embarked on the *Speedwell*, but "more light" has come from outside as well. Discoveries have been made in the valleys of the Nile and the Euphrates; ancient codes and other monuments of Semitic peoples and their neighbours have come to light; and, above all, much has been learnt as to the original text of the Hebrew Scriptures. The mediæval translators could use only Jerome's translation into Latin. The men of the sixteenth and seventeenth centuries had only the Massoretic text of the Hebrew, that text which Jewish Rabbis had fixed about the year 200 A.D., and no manuscripts of which were older than the ninth or tenth century. But now, by the help of Greek and Syriac translations, we can go back behind that traditional text and get a thousand years nearer to the originals than the Jacobean divines could possibly do. The Revisers of 1880-4 used the latest results of New Testament scholarship as guided by our own Westcott and Hort, but, bewildered by uncertainties, they relied still on the Massoretic text of the Old Testament. Thirty busy years have passed since then, and scholars are now practically unanimous on most points of textual reading. The Septuagint, that translation of the Old Testament into Greek of the third century before Christ, imperfectly as it has been as yet studied, has yielded much information, of which perhaps the most striking example is in 1 Sam. xiv. 41-2, a passage which has taught us the meaning of the previously mysterious Urim and Thummim of the Israelite High Priest. Thus, scholars now possess a truer text of the Old Testament than was possible to any earlier generation since the beginning of the Christian era, and it is quite time that some results of the newer knowledge should be made available.

But supposing we could get perfectly the original text of the Old Testament writers, further

questions remain. Most Englishmen are satisfied, and wisely so, with the greatness and beauty of the Psalms, the profundity of Job, the shrewd wisdom of the Proverbs, the passionate pleadings of Deuteronomy, and such stories as those of Joseph or the charming idyll of Ruth. But to students, and especially to those of our readers who teach the historical and prophetic books of the Old Testament, there are other features in the Old Testament than those great thoughts that appeal to the human heart everywhere in its search for God. There is evidently the history of a people embedded in these anonymous books. Not so important, perhaps, for everyday purposes as those parts we have just enumerated, but considering what people it is, how it became the teacher of monotheism to a world of polytheism and of righteousness to a world of immorality, there are some of us who would like to know (and the information would be useful to all) how this literature came into existence, and what is the real story that it reveals. As the books stand, they are obviously materials for history, not history itself as conceived nowadays. Will someone interpret for us laymen what scholars now know, and teach to their students in the training colleges, with practical unanimity on all the chief points, as to the history of Israel and Israel's thought.

Our forefathers toiled and suffered that we might have the Bible in our own tongue, freely to read and use as we thought best. And having obtained the right, many now fail to use it. The Bible is neglected, to the great loss of our higher life. Yet it would be useless to attempt to introduce it again as our fathers had it. What we want is the literature of Israel so arranged that it can be understood. We believe that that can now be done, and there could be no worthier way to commemorate the work of our forefathers. Let us do more than "build their sepulchres." Let us not merely admire them, but imitate them; and as they made available what they knew, let us once more, in a form adapted to the men of our generation, "proclaim the Name of the Lord."

### THE CONSTITUTION AND WORK OF INDUSTRIAL AND REFORMATORY SCHOOLS.

By E. B. WOOD.

HIGH in importance amongst the national reforming agencies must be placed the reformatory and industrial schools of Great Britain and Ireland. Though under the control of the Home Office they are not originated by Government, and are not, in the strict sense of the word, Government institutions. They are usually founded by voluntary bodies, and in a few cases the industrial schools are founded and managed by local authorities. If satisfactory, they are then certified by the Home Secretary as qualified to receive cases committed from the police



courts, under the Children Act, and are then subject to inspection by officers appointed by the Home Secretary.

The schools are supported by grants paid by the Government and the local authorities in respect of cases under detention. Such payments vary according to circumstances. The contribution from the rates varies according to the agreement come to between the particular school and the several local authorities from which it receives cases. The reformatory expects from 2s. 6d. to 4s. from the local authority, and the industrial schools expect the Government grant to be made up to 8s., though sometimes this limit is exceeded. Contributions have also to be made by the parents, but these are not received by the managers of the schools. Either they are paid to the Paymaster-General in relief of the Treasury grant, or, in the case of day industrial schools, they are collected and retained by the education authority managing the school, in relief of the rates.

Home Office schools are of three distinct types. Old wooden hulks have been secured by various bodies, and fitted out as training ships. In such cases the general trend of the instruction, naturally, is to fit boys for a career in the mercantile marine. Unfortunately the Navy is closed to them. Other schools are situated in the country in the midst of their own wide acres of well cultivated land. Such places are known as farm schools. They are happily placed, indeed, both from the point of view of hygienic benefit and the nature of the instruction in which they are enabled to specialise. As will be shown later, they have the very best opportunities of successfully disposing of their cases to the greatest advantage.

There was a day when the industrial school was scarcely differentiated in the public mind from a ragged school. It was usually to be found deeply buried in the heart of the most undesirable quarter of some great city. Many people have not advanced from that view to the present day. The majority of such schools, however, found an increasing difficulty in obtaining cases, for magistrates would not convict, so that they became faced with the alternative either of closing or removing to the country. Decisions varied. Some, however, by reason of their greatly better buildings and environment, still carry on a useful work within hearing of the crowded cries of the street.

Children are committed to these reforming institutions at the instance of education authorities or by reason of the fact that they have come into the hands of the police for some illegal act. In some cases, however, there is no definite charge against the child, who is merely removed from a home or district where, by reason of the bad character of parents or associates, it is undesirable the child should remain. Some few cases are voluntary, and are accepted by certain schools on the recommendation of influential patrons.

Children committed to an industrial school are usually sent there until they attain the age of sixteen, though there is a tendency now to license

out satisfactory lads soon after they reach fifteen years of age. Failure to make proper and profitable use of such a concession immediately results in the boy's recall. Children who are over the age of twelve when committed, or are second offenders, are sent to a reformatory, where they may be detained until they are eighteen. Recently it has become possible to transfer bad cases from an industrial school to a reformatory and *vice versa* in the case of a specially successful case originally committed to one of the senior schools. Such an innovation has proved useful in several cases since it came into force.

When the Children Act came into operation in April, 1909, it was thought by those interested in the upkeep of Home Office schools that there would be an increase in the number of committals. Such a result would have been hailed with satisfaction by these school authorities, as only by having a full school can they earn grants and thus remain on a sound financial basis. Contrary to expectations, however, the number of committals showed a decided tendency to decline, with the result that at the end of the year (that is, nine months after the Act came in force) there were some two hundred fewer children under detention than at the end of the previous year.

Mr. T. D. Robertson, the head inspector of industrial and reformatory schools, states in his report for 1909: "A reduction in the number of committals to industrial schools before very long means increased pressure on the accommodation of reformatory schools, and of this pressure there is already sufficient evidence to show that the managers of these schools will be hard put to it to find room for the young offenders, who seemingly ought to have been removed from contaminating surroundings at an earlier age." He later makes it clear that this additional pressure on the senior schools, though principally, is not entirely due to the Children Act's new provision of alternatives to committal. Considerable misunderstanding still exists with relation to the nature and value of life lived in these special schools, and there often appears an undue reluctance to send a child away to a residential school at considerable expense to the community. It is unfortunate that schools already existing for the public good, and possessed of a magnificent record of useful and necessary work accomplished, should suffer from any preconceived notions that have little or no foundation in fact, but which seriously affect the ebb and flow of committals.

At one time, and that not very many years ago, the scholastic side in the Home Office schools was apt to be regarded as of minor importance, and a schoolroom time-table that found place for anything beyond the three R's was uncommon. The advent of Mr. J. G. Legge, and later of his immediate successor and one-time lieutenant as head of the inspectorate, brought about a wonderful change. At the present time it may safely be said that the time-table in most schoolrooms is as comprehensive in character and the results obtained as uniformly good as in the great

majority of day schools. Usually the lads are half-timers. That is to say, they spend half a day in the schoolroom and the other half in the trades shops or on the land as the case may be. During the time spent in the trades rooms advanced instruction, both of a theoretical and practical character, is given. The opportunities thus offered for correlation of teaching are not lost sight of, and the schoolroom work is so specially designed as to prove of the utmost value when applied to the practical needs of the workshop.

In many of these institutions a sympathetic co-operation on the part of the various instructors produces results that are quite unattainable in the ordinary day school. There is a constant demand nowadays for a closer connection between the day-school curriculum and that of the evening school. Such finer gradation and more complete correlation already obtains in the Home Office schools of to-day. The great educational opportunities arising from the use of the limelight lantern have also been grasped, and a weekly entertainment of a highly interesting and instructive character is the rule in many schools during the winter months. Seldom, indeed, is it that the lads have idle moments. Each evening is fully occupied in some useful manner. Recreative drawing classes open to children of all ages provide amusement and develop skill of no mean order. Most schools have a library and a plentiful supply of good magazines. Thus reading may be, and is, controlled and directed. It is quite the rule to find boys thoroughly well informed on topical matters through their own diligent perusal of the daily papers usually obtained from the members of the staff. One occasionally finds an inquiring mind checking the correctness of the facts imparted by the teacher in a commercial geography lesson by means of the shipping intelligence column. The educational side in these schools is such that it abounds in possibilities, and fills the earnest teacher with an enthusiasm for his calling that he feels nowhere else.

It is safe to say that in no educational establishments of the present day is the subject of scientific physical training more fully recognised and more ably dealt with than in these. They have at hand the means of inculcating the fundamental essentials. Cleanliness of body and clothing can be, and naturally is, insisted upon. The teeth are made the special care of each individual and the general care of a visiting dentist. The dietary scale is specially designed to provide the maximum of nutriment to young frames often sorely in need of such. The rigorous medical inspection obtaining in the bulk of schools lays bare the constitutional weaknesses and specific needs of individuals, thus providing a sufficient guarantee that the minimum of harm and the maximum of good may arise from the special instruction to follow. Courses of gymnastics, both free and applied, are the rule, and the degree of proficiency arrived at is frequently of the highest order. Where ready access may be had to a swimming bath the same results are obtained. Not only is swimming

taught, but special attention is paid to the subject of live-saving methods. Many boys become quite capable of earning the Royal Life Saving Society's bronze medallion for efficiency, but owing to the age limit imposed by the society they are unable to do so. Similar valuable instruction is given on the subject of first aid to the injured. Such teaching is not of a superficial character, but succeeds in developing practical working ability that can stand the test of genuine emergency. Of late years several schools have fitted up miniature rifle ranges, and at two schools the Solano targets have been adopted. Thus it will be seen that a practical application of principles is in evidence throughout.

Field games receive the fullest encouragement, and a healthy rivalry is kept alive by the district league competitions, now six in number. A pleasing feature in connection with the above is the gold cup presented by the chief inspector, Mr. T. D. Robertson, to the team that displays the truest sportsmanlike spirit throughout. This trophy is quite apart from the handsome cup that falls to the lot of the league winners. The results of such physical training must be seen to be believed. A visit to the annual athletic and aquatic sports provides a spectacle of high efficiency, but the truer test is applied when one considers the muscular development and the abounding vitality that is the common possession of these lads.

When one remembers that a large number of the lads emigrate to the colonies it is easy to appreciate how valuable a domestic training also may prove to them in their future. As very new boys they are taught to darn socks, sew on buttons, and patch clothes. Later they may learn to make clothes or boots, and, incidentally, during their turn in the kitchen, succeed in gleaning some useful knowledge on the subject of plain cookery. The vigorous house-cleaning that is always in evidence provides them with a sufficient knowledge of how and when to scrub floors or clean windows or brass.

In recognition of the fact that the land now offers vast possibilities for self-advancement to the skilled artisan, many schools have incorporated in their scheme of work a theoretical and practical course of instruction on market gardening and farming. In addition to the duties imposed upon them by the needs of the school's farm lands and orchards many boys are granted small plots of land for their own use. With it they may do as they like under one condition, that they do well and truly cultivate it. The care of this plot occupies much of their leisure, yet the popularity of the scheme is vouched for by the eagerness with which claims are made for a plot that becomes vacant at any time.

Manual instruction rooms are to be found in all schools, and in addition to the ordinary course followed in such places much valuable work is done in constructing actual articles demanding no small knowledge of carpentry and joinery. Indeed, so practical is the trend in this direction, that in several schools quite extensive building operations

have been carried out by the older lads under the guidance of an instructor. Tailoring and boot-making are trades taught in other schools, and it is nothing unusual for the boots and uniforms worn by the lads to have been made on the premises. The training ships, in addition to what has already been mentioned, give instruction in seamanship, knotting and splicing, sea cookery and navigation, and, in fact, in all that appertains to the duties of a sailor in the mercantile marine.

The majority of the larger schools have a band, and the musical training thus imparted opens up an important field for advantageous disposal, as many of these boys can be drafted into regimental bands.

After all, the supreme test of the value of such reforming methods lies in the measure of success that is achieved by the lads after they leave the school, and, to some degree, become free agents. The qualification is necessary because for some two years after leaving the school they are still under the control of the authorities, whose duty it is to report yearly to the Home Office on the character and well-being of their late pupils, such report calling for considerable detailed knowledge. The last few years have shown a steady improvement in the disposal results as set out in the statistics. Something over 84 per cent. are shown to be in regular employment under satisfactory conditions. Only 5 per cent. or 6 per cent. are returned as being casually employed, and the proportion of untraceables has been reduced to 3 per cent. The remainder is made up of cases who are reconvicted.

It might here be stated that the danger of a relapse to criminal courses is always more acute when children return to their homes, and the contaminating environment of old associations and associates. In this fact there appears to be ample justification for their original removal, and for the existence of the reformatory institutions that so radically alter their condition and prospects. The reason for this improvement in the character and result of disposals may be traced to two causes. In the first place considerably more money is being spent each year on this branch of the work. Undoubtedly such additional expenditure is the soundest economy, since it makes good the value of the money that has already been spent upon the training in the school.

The second cause lies in the fact that periodical visits are made, where possible, by the superintendents and managers to the workshops and other places where the lads are employed, thus safeguarding their welfare and interests, and at the same time imbuing them with a sense of still being the care and object of regard of a powerful and benevolent organisation with which the past has already connected them by ties of affection and gratitude. The two most satisfactory channels for disposal have been proved to be to the Army and to farm service, the latter usually in Yorkshire, Wales, or Cornwall. The secluded life lived under such conditions enables the lads to save their wages, and it is by no means uncom-

mon for a youth to acquire a small capital in this manner and then remove to the colonies, for which place he is undoubtedly most eminently suited.

In order that boys may enter the Army with the definite intention of gaining promotion, many schools have special Army classes that place within the scope of their students' knowledge the means of achieving success. Compared with many other forms of disposal, the sea service stands but ill in the matter of permanency, though there is hope for improvement in this direction as the nautical schools are now striving to prepare their pupils for service on the great lines, where the conditions of a sailor's life are made as comfortable as is possible in the circumstances.

The welfare of children who are sent to the colonies is looked after by accredited agents of proved capacity and integrity. It is the duty of these people to look well into the working conditions of their charges, and, where necessary, to facilitate a change of position. Naturally, this means of disposal and supervision entails considerable expense, and of this the Treasury provides anything from one-third to a half of the emigration expenses.

## THE SCHOOL-LEAVING AGE.

By J. T. PHILLIPSON, M.A.

Headmaster of Christ's College, Finchley.

1.

Dear Sir,

As my son will reach his fifteenth birthday next summer, I shall be obliged if you will kindly let him give up algebra, geometry, science, and Latin, and take up German and arithmetic instead. I should also like him to learn shorthand and bookkeeping, and practise handwriting. As he is destined for a commercial life, kindly accept this intimation that he will leave your school next July. Thanking you in anticipation,

Yours faithfully,

P.S.—Can you arrange for him to learn typewriting?

2.

Dear Sir,

I read the contents of your letter of — with much regret. As you are aware, I am strongly of opinion that for a boy to leave school at so early an age as fifteen is greatly to be deprecated. School life between the ages of fifteen and eighteen is—to my mind—of more value to a boy than all his previous career. On the other hand, I think that to miss this and to engage prematurely in business is likely to have a stunting effect upon his whole after-life. Consequently, I would urge you, for your son's sake, to reconsider your decision.

In any case, I fear it will be impossible to give effect to your wishes as to his studies. The school curriculum and the demands upon the time of my staff alike render it impracticable.

Yours faithfully,

3.

Dear Sir,

I am in receipt of your letter of —. I am sorry that I am not able to reconsider my decision. Under the circumstances, I beg to give notice that my son will not

return to you after Easter, as I must send him to some institution where he can learn the essentials for a business career.

I must add, as a ratepayer and taxpayer, that I think it strange that such a course is not provided at your school.

Yours faithfully,

MANY a headmaster must have been engaged time and again in a correspondence of this kind, and it furnishes food for serious thought. There is evidently a screw loose somewhere; the parent wants one thing, the schoolmaster wants another. Which is right, and which is wrong? Or, if both are partly right, can we not hit upon an accommodation?

The schoolmaster's case is that a boy whose education at school is continued up to the age of eighteen or nineteen is not only raised to an intellectual plane considerably higher than that which he would have attained had he left school for business (or even for a purely business "education") at the age of fifteen; not only that the very existence during those three years in the atmosphere and environment of school life is of inestimable value to him, but also that thereby he will eventually become more valuable to his future employers, will have a better chance in the battle of life, and will make a better citizen than otherwise would be possible.

The parent, on the other hand, feels—if he does not say so explicitly—that this is a fancy picture, or at the best a visionary ideal. A plain business man himself, he will very likely tell you that *he* did not have the advantages enjoyed by boys of the present day; he was obliged to enter the mill when he was fourteen, and it did him no harm, rather the contrary. Besides, if a boy is to learn his business, he must begin at the bottom; if he remains at school until he is seventeen or eighteen, it simply means that he will be junior to other boys younger than himself. Commercial houses, he will add, do not want that kind of youth; they are useless at an age when they ought to be useful, and frequently they show symptoms of considering their work beneath their dignity.

The schoolmaster rejoins by pointing to the widely different attitude of other nations, emphasising the value set by them on a wide and thorough preliminary education, and declaring his conviction that the threatened eclipse of our commercial supremacy is largely due to this cause. He may quote the Mosely Commission report; he may refer to Miss Burstall's "Impressions of American Education in 1908," citing for example such a passage as, "The most vivid and permanent impression stamped on every English student [of American educational methods] is the extraordinary strength and magnitude of the American belief in education." He may bring forward any quantity of evidence as to German views on education; he may even be able to produce such testimony as the following, written by a firm of London accountants:

We have no hesitation in stating as our opinion that boys of eighteen who have had a sound general education are much to be preferred to those, one or two years younger, who have not been so well educated, but who have acquired some knowledge of shorthand, bookkeeping, and typing. The former class of boy quickly acquires proficiency in such matters, and there is no doubt that his education fits him for much better and more responsible work, and renders it likely that his progress and success in the commercial world would be more rapid.

But the parent will go away unconvinced, and his son will go into business, after a few months spent "in acquiring business methods," at the age of fifteen and a half.

I have recently been at some trouble to gather statistical information as to the age at which my boys leave, their subsequent careers, and some other particulars, and I venture to reproduce it in the belief that it will prove of interest. The first table gives details of the leaving age of all boys during the last five completed school years.

| Age at leaving | I.<br>School sessions<br>August 1, 1905,<br>to July 31, 1910 | II.<br>The same, divided into sessions and expressed<br>as a percentage of the total who left during the<br>session in question |        |        |        |         | III.<br>The five ses-<br>sions expressed<br>as a percentage |
|----------------|--|---|--------|--------|--------|---------|---|
|                |  | 1905-6  | 1906-7 | 1907-8 | 1908-9 | 1909-10 |   |
| 10-11          | 2  | 2'17  | —      | —      | 1'88   | —       | 0'78  |
| 11-12          | 11   | 8'69  | 2'38   | 3'27   | 7'54   | —       | 4'29  |
| 12-13          | 15   | 4'34  | 2'38   | 4'91   | 3'77   | 12'96   | 5'85  |
| 13-14          | 18   | 13'04   | 7'14   | 4'91   | 5'66   | 5'55    | 7'03  |
| 14-15          | 38   | 19'56   | 16'66  | 6'55   | 16'94  | 16'66   | 14'84   |
| 15-16          | 86   | 28'26   | 33'33  | 39'34  | 28'30  | 37'03   | 33'59   |
| 16-17          | 61   | 15'21   | 23'80  | 29'50  | 26'50  | 22'22   | 23'82   |
| 17-18          | 22   | 6'52  | 14'28  | 9'83   | 7'54   | 5'55    | 8'59  |
| 18-19          | 3  | 2'17  | —      | 1'63   | 1'88   | —       | 1'17  |

The next table gives the figures for the same period, excluding boys who left to go to another "ordinary" school, and also a few who went to a training ship, which—for our present purpose—may rank as an "ordinary" school:

| Age at leaving | I.<br>School sessions<br>August 1, 1905,<br>to July 31, 1910 | II.<br>The same, divided into sessions and expressed<br>as a percentage of the total who left during the<br>session in question |        |        |        |         | III.<br>The five ses-<br>sions expressed<br>as a percentage |
|----------------|--|---|--------|--------|--------|---------|---|
|                |  | 1905-6  | 1906-7 | 1907-8 | 1908-9 | 1909-10 |   |
| 10-11          | 0  | —   | —      | —      | —      | —       | —   |
| 11-12          | 0  | —   | —      | —      | —      | —       | —   |
| 12-13          | 0  | —   | —      | —      | —      | —       | —   |
| 13-14          | 2  | —   | —      | —      | 3'12   | 2'63    | 1'13  |
| 14-15          | 15   | 14'29   | 9'09   | 2'22   | 6'25   | 13'15   | 8'52  |
| 15-16          | 77   | 46'42   | 42'42  | 46'66  | 34'37  | 47'36   | 43'75   |
| 16-17          | 58   | 25'00   | 30'30  | 37'77  | 40'62  | 28'94   | 32'95   |
| 17-18          | 22   | 10'71   | 18'18  | 13'33  | 12'50  | 7'89    | 12'50   |
| 18-19          | 2  | 3'57  | —      | —      | 3'12   | —       | 1'13  |

A circular letter was sent to boys who had left between September, 1905, and December, 1909, thirteen terms in all, containing the following questions:

A. 1. When you left this school, did you go to some other school?

2. If so, was it an ordinary school, or

3. Was it a place where you could learn special subjects, e.g., typewriting?

B. 1. When you left this school, did you go straight into business?

2. If so, what was its nature?

C. 1. If your answer to B. 1 is "yes," have you been attending any classes to further your education?

2. If so, what subjects have you taken?

D. 1. Would you have stayed here longer if we could have given you tuition in any subjects not included in our school course?

2. If so, what subjects would you have liked to study here?

The answers to these questions were not always quite so definite as one would wish, and in some cases the colours, so to speak, ran into each other. Consequently, in other hands the figures might vary slightly from those here given. But they may be taken as being, on the whole, a faithful representation of the facts. The replies to the first two show that about 30 per cent. left to go to some other "ordinary" secondary school. Further inquiry revealed the fact that these belong to two classes, (1) those who left to go to, say, the Merchant Taylors' School, or for some similar reason; (2) those who left because their parents were leaving the neighbourhood. The first class comprise about 12, the second about 18 per cent. of the whole. The latter figure, by the way, is a striking proof of the migratory character of a suburban population.

The results of questions A 3, B 1, C 1, and D 1 are given per cent. in the following table:

| A 3  | B 1   | C 1   | D 1   |
|------|-------|-------|-------|
| 14.4 | 56.97 | 26.04 | 12.55 |

With regard to the questions B 2, C 2, and D 2, no reply was given in some cases; in other cases it was of too general a nature to be of value. Eighty-nine replies were received to B 2: the occupations of these pupils may be divided into (1) professional or semi-professional, e.g., accountancy, engineering, banking; (2) various (including such diverse pursuits as farming and boy-clerkships); (3) commercial. But it is difficult to differentiate; the various occupations are like the colours of the spectrum. We may take it, however, that of the 89, 46 belong to class (1), 15 to class (2), and 28 to class (3). Insurance comes first with eleven devotees, banking has ten, engineering eight.

The most popular subjects for continuation work appear to be bookkeeping, shorthand, commercial arithmetic, French, and German. The range of these subjects is considerable; more than thirty were mentioned. The lament of those who put "yes" against D 1 was chiefly concerned with the first three of those just named, to which we may add typing and handwriting.

Now all these statistics give occasion for serious reflection. The leaving age at this particular school is probably not lower than

at other similar schools; indeed, there is some reason to think it may be higher. Yet we find that 53 per cent. leave before the age of sixteen: one-seventh have to go to some institution where shorthand and the like are specialities, one-eighth would have remained could we have met their desire for such accomplishments.

There are, of course, schools which make a feature of "commercial education," and in such a way as to give it a real educative force. In Germany and the United States the problem has been resolutely faced, although in the latter country the efforts to grapple with it appear to be in the experimental stage. In the case of what I have called "ordinary" secondary schools (or, at least, in the case of a large proportion of them), the theory is that a boy, in his passage up the school, receives a general education, as opposed to any sort of specialised education, until such time as he is able to set the seal to his proficiency by passing some examination of a standard equivalent to the matriculation; thereafter he is free to specialise in any way which the economy of the school renders possible. But it is a matter of common observation that an overwhelming majority fail to "stay the course," and that not so much, or not so often, because the goal is beyond their powers, as because the parent considers the theory unsound, the course unpractical, and its pursuit—at all events, in its later stages—a waste of valuable time.

These are factors which cannot be ignored. Whether public money should be spent upon commercial specialisation is a fair matter for debate. In my humble opinion, the answer should certainly be in the affirmative. Seeing that Parliament has, tardily enough, taken secondary education under its wing, it would seem anomalous that this higher education should not receive the same attention in *all* its branches as that accorded to primary education. Again, the great lower-middle class, from whom State-aided secondary schools are mainly recruited, is beyond all others the milch cow of the Treasury, and, but for its passivity, would be a force in politics which no statesman would dare to flout; it is the least considered, and the most deserving of consideration, of all classes in the community. Further, as to the individual boy, it is far better that he should complete his pupilage in the atmosphere and surroundings of his school than at any cramming institution whatsoever.

In my judgment, the education authorities would be well advised definitely to sanction the introduction of a well-considered commercial course. It should be open (a) to boys who have passed the matriculation or some equivalent examination, (b) to boys who have passed their fifteenth birthday and reached a given standard in general work. This commercial side might be limited to a given percentage of the school, an arrangement which would have a stimulating effect on the commercially minded; a further beneficial effect would be attained by giving preference to class (a). Only those boys of class (b)

should be admitted who will give an undertaking to follow the course for six complete terms. I would go so far as to suggest that some remission of fee should be granted to some or all of these boys.

No doubt these suggestions are open to much criticism, but they are given for what they are worth, and in the belief that they contain the germ of an accommodation which will meet the views of educationists and the public alike.

## THE PURSUIT OF KNOWLEDGE.

### III.—TELEGRAPHY AND ETHER-WAVES.

By Prof. R. A. GREGORY.

SCIENTIFIC discoveries of direct and immediate application to human affairs rarely spring forth full-grown and clothed, as the goddess Minerva did when her noble form emerged from the head of Jupiter. As the acorn gives birth to the giant oak, so what seems to be a trivial experiment or observation is often the seed of a great industry.

In 1819 Hans Christian Oersted, a professor at the University of Copenhagen, discovered that when a wire conveying an electric current was placed lengthways over a compass needle, the needle turned aside from it. The discovery was made accidentally in the course of a lecture, but, as in many other instances in the history of science, "such accidents only meet persons who deserve them." When Oersted published the results of his observations of the influence of an electric current upon a magnet, no one supposed that they could have any practical value, yet upon his simple experiment the system of electric telegraphy was based. By sending an electric current through a wire, a compass needle could be deflected to one side or the other at the distant end, and the signals thus received could be translated into messages.

Oersted (said Lord Kelvin) would never have made his great discovery of the action of galvanic currents on magnets had he stopped in his researches to consider in what manner they could possibly be turned to practical account; and so we should not now be able to boast of the wonders done by the electric telegraphs. Indeed, no great law in Natural Philosophy has ever been discovered for its practical applications, but the instances are innumerable of investigations apparently quite *useless* in this narrow sense of the word which have led to the most valuable results.

There have been many improvements since the early days of electric telegraphy, but they all depend upon magnetic effects produced by electric currents. In electricity, a far fleetier messenger has been found than Puck, who boasted in "Midsummer Night's Dream":

I'll put a girdle about the earth in forty minutes.

The land wires and submarine cables now devoted to telegraphic service would girdle the earth 250 times, and with the telephone lines the total

length is about thirty-three million miles—one-third of the distance from the earth to the sun.

Prof. Joseph Henry in the United States, Ampère in France, and Faraday in England, gave particular attention to Oersted's experiment and its consequences; and to their work we owe the construction of the electric dynamo by which the current for lighting, traction, and other purposes is now produced. They reasoned that since electricity in motion could disturb a magnet, the reverse should hold good, and a magnet in motion should be able to produce an electric current in a conductor near it. Both Henry and Faraday commenced experimenting with the view of creating a current by the action of a magnet, and both eventually succeeded. In 1831 Faraday wrote to a friend:

I am busy just now again on electro-magnetism, and think I have got hold of a good thing, but can't say. It may be a weed instead of a fish that, after all my labour, I may at last pull up.

A little later Faraday was able to show that when a magnet is brought rapidly near a coil of wire, a slight electric current is induced in the coil. Upon quickly removing the magnet, a momentary current in the opposite direction is created. Here, then, was a means of producing electric current by the expenditure of mechanical energy. All that was required was to set a magnet in rapid motion near a coil of wire properly arranged, and a supply of electricity could be obtained. This was not fully realised, however, until many years after Faraday performed the experiment to which the electric dynamo owes its origin, though scientific men understood the significance of the experiment.

This discovery of magneto-electricity (wrote Tyndall) is the greatest result ever obtained. It is the Mont Blanc of Faraday's own achievements. He always worked at great elevations, but higher than this he never attained.

Nearly fifty years elapsed before the discovery was used with commercial success in the construction of the dynamo; and now as we travel at high speed upon electric railways and illuminate our streets and homes with electric light, let us remember that we owe these advantages to persistent and purely scientific experiments made by Faraday at the Royal Institution between the years 1824 and 1831.

The triumphs of wireless telegraphy can likewise be traced back to scientific researches carried on in laboratory and study. Its development is due even more to theory than to practical work. When the effects of currents upon magnets, and upon one another, had been determined, science demanded an explanation of them. The effects can be produced in a vacuum, or through glass, wood, or similar substances; so evidently what seems to be empty space or material bodies must really be filled with something capable of transmitting the electric and magnetic forces. Ampère suggested that the observed facts could be explained by the presence of a universal medium

which could convey these forces from one point to another. Henry and Faraday also held this view, and it was developed in detail by a mathematical physicist, James Clerk Maxwell, about the middle of the nineteenth century.

What Maxwell did was to extend by brilliant mathematical analysis the conception formed by Faraday as to the propagation of electro-magnetic action by an intervening medium. The theory of "action at a distance" assumed that no medium was actively concerned with the transmission of electric or magnetic forces, whereas Faraday, by experimental researches and reasoning, showed that the action took place along curved lines, which he termed "lines of force."

Faraday (said Maxwell), in his mind's eye, saw lines of force traversing all space, whereas the mathematicians saw centres of force attracting at a distance: Faraday saw a medium where they saw nothing but distance: Faraday sought the seat of the phenomena in real actions going on in the medium; they were satisfied that they had found it in a power of action at a distance impressed on the electric fluids.

As the result of his analysis of Faraday's experimental results, and the lines of force which he invoked to explain them, Maxwell was able to prove that electro-magnetic disturbances, and waves of light, are transmitted by one and the same medium, and with the same velocity. Thus, electro-magnetic and optical phenomena are identical in kind, and differ only in the rapidity of vibration of the medium—the universal ether—which transmits them. Sunlight comes to us across ninety-three millions of miles of so-called empty space, and starlight from distances hundreds of thousands of times greater; and they both reach us as waves which can be measured, and their interference effects observed, more easily than can those seen on the disturbed surface of a lake or other sheet of water. A medium had to be invented to account for the transmission of these waves; and this medium is appropriately termed the "ether," signifying the sky—the home of the gods. No one can see the ether, or weigh it, or isolate any part of it, yet it apparently pervades all space and permeates all material things, as water does a wet sponge; and through it electro-magnetic waves, as well as waves of light and heat, are propagated.

In 1842 Henry arrived at the conclusion that when an electric spark is produced by the sudden discharge of a Leyden jar or other form of electric condenser, the spark is not due to a single splash of electricity from one point to another, but to many rapid oscillations of electric action between the two points. The total duration of the discharge is far too short to be analysed by the eye, but if it could be extended over a sufficiently long interval the spark would be seen swinging like a pendulum from one point to the other until the surging disturbance which produced it had settled down again. Both Lord Kelvin and von Helmholtz independently reached the conclusion expressed by Henry before them as to the oscillatory character of the electric discharge; and Clerk

Maxwell showed that such a discharge must give rise to etheric disturbances which would travel through space with the velocity of light.

When a theory can be stated in mathematical terms it is possible to predict effects before they are actually observed. The consequences of Maxwell's theory were clearly understood by physicists, two of whom, Prof. Heinrich Rudolf Hertz in Germany, and Sir Oliver Lodge in England, devoted themselves to the task of detecting the ether waves which must be created by an oscillatory electric discharge. About 1888 Maxwell's prophetic conclusions were brought within the range of demonstration by Hertz, who discovered a means of increasing the amplitude of the electric waves radiated from the discharge circuit, and devised a sensitive detector of these periodic disturbances of the ether. It was Hertz, therefore, who provided the experimental proof for which science had waited twenty years.

The difference between light waves and electric waves—now called Hertzian waves in honour of their discoverer—is a difference of length, or of rate of vibration of the ether. The shortest waves which affect our sight are those of violet light, produced by about seven hundred millions of millions of vibrations in the ether per second. This frequency of oscillation decreases as we pass down the scale of colour through blue, green, yellow, and orange to red light, which is caused by about four hundred millions of millions of etheric vibrations in a second. Hertzian waves are due to much slower vibrations in the ether—a few millions per second—and though they do not affect our visual sense directly, they have precisely the same other properties as waves of light. Electricity and light are, in fact, merely different manifestations of waves in a universal medium, the undulations in one case being not less than the thirty-thousandth of an inch in length, while in the other they may be several feet or yards long.

Soon after Hertz's experiments had established the truth of Maxwell's theory, the possibility of basing a system of wireless telegraphy upon the production and detection of electric waves was pointed out. More sensitive detectors were devised than were used by Hertz, and new methods were found of making them responsive to the influence of electric radiations. In 1894 Sir Oliver Lodge, in the course of a lecture at Oxford, transmitted messages by etheric waves from one university building to another. Two years later Mr. W. Marconi was granted a patent for his system of wireless telegraphy based upon the creation and detection of electric waves.

Mr. Marconi saw that the laboratory experiments of Hertz might be put to practical use, and proceeded to adapt them to a system of telegraphy through the ether. As the radiator of electric waves he introduced a long vertical wire, broken by a spark gap, so that the pulses could surge up the wire and down into the earth, sending waves out into the ether in all directions as they did so. He constructed a more sensitive and trustworthy



instrument to detect the waves, and ascertained what energy was required to make it possible to signal over any distance. To his knowledge, confidence, and daring must be ascribed the commercial development of wireless telegraphy. In 1898 he sent messages from Poole to Alum Bay, Isle of Wight, a distance of eighteen miles; and in 1910 he was able to produce electric waves so powerful that their influence could be detected, and signals read, at a distance of six thousand miles. This remarkable performance, which suggests marvellous possibilities for the future, was achieved as the direct outcome of the scientific work of Hertz, Maxwell, Faraday, and Henry. As Mr. Marconi himself acknowledged in 1900:

The experimental proof by Hertz thirteen years ago of the identity of light and electricity, and the knowledge of how to produce, and how to detect, these ether-waves, the existence of which had been so far unknown, made possible wireless telegraphy.

### THE TEACHING OF GEOGRAPHY.<sup>1</sup>

AT the instance of the Education Officer of the London County Council, a series of conferences is being held to deal with the various subjects included in the curriculum of primary schools. The reports of these conferences are now being published; the English conference report was dealt with in these columns in January, 1910 (vol. xii., p. 3); now we have the report of the Geography Conference. "In the constitution of the conference an attempt was made to secure a representation of various elements: practical teachers in all grades of school and college, authorities on the theory of the subject, and officials with experience of educational administration." The list of members contains twenty-four names, other than those of the chairman, Mr. J. W. Peck, now clerk to the Edinburgh School Board, and the secretary, an official in the L.C.C. Education Officer's Department. Of the twenty-four, all but two may be classified as practical teachers; seven members represented the universities, four the day training colleges, two the secondary schools, and the remaining nine represented the primary schools. The other two members were an L.C.C. district inspector and the secretary of the Royal Geographical Society.

The report contains twelve chapters and an introduction. Chapters iv. to vii. deal with method of teaching in general, and in junior divisions (seven to ten years), seniors (ten to thirteen years), and in higher departments of elementary schools. The report

has the advantage that each chapter is self-contained, so that the teacher interested in a special phase of the subject may find in the corresponding chapter most, if not all, that he desires.

The educationist who has his eye on the curriculum as a whole may reprehend this report as being the work of

specialists who would make their subject eclipse all other subjects in an already overcrowded syllabus. To this it need only be replied that the commission given to the conference was to report on geography, and that competition and survival will no doubt operate healthily in the school curriculum as in other things.

Lastly, it may be said that many of the methods indicated are too ambitious for the primary school. It has been thought well, however, to err on the side of elaboration; for the report is essentially suggestive, and in no way aims at prescription.

Under the head of method in general, two aspects of geography are considered: the first is observational in character, introduced by nature-study; the second implies that earth-knowledge which is the sum total of the results of careful observations by others.

The two methods of treatment will run side by side, each starting with broad outlines and growing more detailed as the course proceeds. It is clear, however, that it is undesirable to keep the two spheres separate. A connection must be established, and the contents of each must react on and help the other.

It should be noticed that the line of demarcation is fairly definite, since the geography of direct observation must, for the primary-school pupil, be a fairly limited thing. The development is not, therefore, an appreciable enlarging of the one sphere into the other, but rather, as has been indicated above, an intensifying of the knowledge within the respective spheres. The relationship must therefore be sought otherwise.

Three methods of connection suggest themselves, and each requires skilful handling by the teacher if an effective unity of the subject is to be brought about.

The relation of the concrete material actually observed to the statements of the results observed by others is to be obtained by means of actual commodities, such as tea or cotton, by plants, pictures, photographs, &c., from lands which lie beyond the child's personal ken. A second method avails itself of the means of communication by road, rail, or ship, where the child can see the beginning of the route, and has to project its thoughts along the route to the other end. Lastly, there is the method of analogy: so-and-so is true here; we see it and we know it; what will be true there? Such are the means suggested to co-ordinate the two aspects of teaching, and the report shows that neither aspect is satisfactory when used alone.

For the juniors (chapter v.) lessons are suggested on observation of the sun, the weather, changes of season, the life of the town, and the contents of the shop-windows; and five courses of work on the globe are suggested from the other point of view. Course A deals with the stories of life in the zones; Course C refers to the stories of man in different surroundings; e.g., life on coast-lands, on the plains and on the hills, life in the forests and on islands. Course B is as follows:

Relation of the habits and occupations of man to local geographical conditions. The course may be taken as amplifying A, or as a separate course.

<sup>1</sup> London County Council Report of a Conference on the Teaching of Geography in London Elementary Schools. (P. S. King and Son, Westminster, S.W.) 1s.

(1) *Food of Man.*(a) *From temperate regions.*

*Corn.*—Conditions necessary for growth, life of farmer, miller, baker.

*Meat or Flesh.*—Pasturage, cattle rearing, sheep and cattle ranches, life of squatter, tanner, bootmaker, buccaneers.

*Dairy Produce.*—Making of butter, cheese, milk-maid, milk traffic, poultry farm.

*Fish.*—Home fisheries, dried and fresh fish, tinned fish, cod-liver oil, centres of industry, life of fisherman, storms, dangers, lighthouses.

*Fruit, Vegetables.*—Market gardener, Covent Garden Market.

(b) *From hot regions.*

Tea, sugar, rice, coffee, tropical fruits, story of cultivation, plantation, harvest and workers.

(2) *Clothing of Man.*(a) *Material from temperate region.*

Wool, linen, leather, silk, straw. The raw material, locality of industry, necessity for coal and iron, life of worker, some detail of manufacture.

(b) *Material from hot region.*

Cotton, feathers. Cultivation of cotton, coloured labour, rubber.

(c) *From cold regions.*

Furs and skins. Life, habits, and geographical surrounding of hunters.

(3) *Means of Communication and Transport.*

(a) *Home.*—Road, rail, canal, river, travel before and after development of steam traction.

(b) *Foreign.*—The sea, ships, shipbuilding, where carried on, timber, lumbering; sailors, wrecks, harbours, ports.

The seniors (chapter vi.) are to have observational work on wind directions and climate, on rocks and weathering agents, on soils, &c., and on atmospheric changes due to heat. They are to have exercises on map interpretation, and training in learning for themselves as much as the map can adequately show. From considerations of climate they are to pass on to rivers and lakes, and then on to questions of food-supply and minerals, in connection with which the report states: "As to useful minerals, everything must be told, best by means of maps which show only the more important profitable deposits." Perhaps it would be better if the maps showed the deposits which are largely worked, and gave some indication as to the extent to which these deposits are worked in comparison with similar deposits elsewhere. After a consideration of population, the seniors are to consider special areas and to develop their knowledge of the homeland by means of large-scale maps.

Typical questions on France as a special region are given as follows:

*France.*—Questions as to natural and artificial boundaries, as to means of communication, easy and difficult; several in the Paris, Lyons, and Mediterranean route.

Climate diversities; where most like that of England, where most different. The contrasts of climate in S.W. and S.E. districts, and as between low grounds and high grounds.

Corresponding great variety of agricultural products. Winter and summer pastures.

Questions bearing on forest clearing and its effects.

Exercises to show the importance of Mont Cenis tunnel. Also of Marseilles, to bring home the fact that Marseilles is, in France, without a rival for Mediterranean trade of all the south-east and north of France, and some parts of central Europe; but has rivals in other ports (e.g., Genoa), while the ports of the west compete with one another in limited areas.

## And other regions are suggested:

Belgium, Holland, Germany, Switzerland, will all similarly be treated with questions to bring out distinctive features that make a difference to man in those countries. The examples above given will suffice to suggest to teachers the kind of questions to put in each case, but it may be pointed out in the case of Germany that many of the questions should lead to the placing of due emphasis on the importance of the German rivers as inland waterways, on account of their length, depth, comparative steadiness (especially of the more important), and on account of the fact that they traverse areas supplying or requiring great quantities of bulky commodities. It should be noted, too, that this is a case in which it is desirable not to adhere strictly to the political boundaries in the geographical treatment, owing to the way in which the Rhine connects with Holland and Belgium and the Elbe with Bohemia. Though Switzerland has been implicitly suggested for treatment in a large measure under the more general heading of the Alps, yet it is desirable to treat it also separately as a country, inasmuch as it offers a peculiarly favourable opportunity for considering a country with a large transmarine commerce, but without seaports.

The keynote of the work in higher departments lies in the suggestion of more intensive work on the material already outlined.

In chapter viii. reference is made to the correlation between geography and other subjects; the more important connections between geography and nature-study, physics, mathematics are mentioned, and on the relationship between geography and the humanities there are the following important paragraphs which should do much to counteract a strong tendency to subordinate geography to the humanistic outlook of history:

Beyond the observational or natural knowledge side of geography, the human aspect must always be prominent, and here geography touches history and language. Geography and history deal in many cases with the very same facts, and have the same subject-matter. A series of lessons on London, for instance, might appear in either a geography or a history course; but the same facts in the two courses would be used for absolutely different objects. A teacher of geography must adhere consciously to the geographical treatment of his facts; and, however historical his subject, he must never confuse his lines of attack with those of the history teacher. The main interest of geography, as of history, is its investigation of causal relations; but the causal relations of geography are those of space and situation, those of history are of events in their time relations. That is, geography concerns itself with *where*, and the details *why* and *how*; history with *when*, and the details *how* and *why*. It is too much to state that, to teach geography well, one

should know history well, or that all geography teachers should be history students in the strict sense; yet, in order to give that important human interest which is the soul of geography, the geography teacher should have the historical interest, and should know at least enough history to grasp the great movements and tendencies and to realise their general dependence upon natural conditions. There seem, however, to be new possibilities of correlation in the teaching of geography and history. A general treatment covering large time areas is recommended in the middle stages of history teaching, and a study of essential features of large regions such as Eurasia is felt to be good in the middle-school stages of geography. The important outstanding events of world history or European history take a place parallel with the general geography of the world and great regions, while the beginnings of history in stories connected with the locality or the home country correspond with the building up of geography from the local area. The analogy of method runs further, but its existence is suggestive of useful correlation in the two subjects.

It must be emphasised that such correlation is the very opposite of amalgamation. "Useful correlation" implies the antecedent truth that geography and history are different subjects with different points of view. To preserve the identity of each, it is necessary that each should be taught according to its own method. If this is done, geographical control can be realised in the study of history; and on the other hand geography will gain an additional interest from appreciation of the pregnancy of past events. If it is not done, combined history and geography will probably result only in a vague and weak association of constituent "facts" of each subject, and neither geographical nor historical causation will be clearly apprehended.

Other chapters contain useful accounts of the past and present methods of teaching this subject, the special problems of the elementary schools of London, maps and lantern-slides, and the training of teachers.

In connection with equipment and apparatus (chapter ix.) there are useful practical suggestions as to the room in which geography should be taught, and a scheme is outlined whereby a special room might be set apart for this subject.

From chapter xi., which deals with examinations, we take the following extract on tests in the higher classes:

As to the precise details of the test, it should be almost entirely in writing, and no importance should be attached to very accurate map-drawing, still less to clear manipulation of "divers colours." Indeed, map-drawing should be restricted to the superimposing of approximately equal areas of somewhat similar shape, simply to show relative size and shape; and the drawing of mountains as a thick line—instead of an "area"—may be allowed so long as the line is not continuous, but broken so as to show that passes are at least as important as peaks.

One question should be certainly set on world phenomena, and by preference on *climate*; and the most important point of all seems to be the swing of the wind belts with the sun.

One good "relief" question should follow, but should always be on a *prescribed*, or a very important, area; and the same rule should hold about any questions on towns. It is allowable to set comparatively small places from a

prescribed area, but otherwise all places dealt with should be of world importance.

One question should always be asked about products; but seven-eighths of the marks should be given to the "inferring" of the products from the place, and *at least three times as many marks should be given for a correct argument leading to a wrong conclusion as for a correct end preceded by a wrong argument or none at all.*<sup>1</sup>

Somewhere in the paper there should lurk an opportunity for children to show that they have "standards of judgment"—e.g., the position of the North Tropic as marked by Havana, Calcutta, Canton—and have learned to notice "interesting coincidences"—e.g., the "framing" of Japan as 30°–45° N., 130°–145° E.

The italicised portion of the above quotation appears to suggest a very pernicious habit of mind. We trust that we are mistaken. Children should be taught to make generalisations; care is to be taken that before this mental process is pursued, adequate material in the form of salient facts has been provided for the children; and, finally, the generalisation which has been reached should be tested at the bar of actual fact: e.g., wheat is found to be grown in lands with a "Mediterranean" climate; this is the generalisation. There are two tests to apply: (i) is wheat grown well in all the lands with this climate? (ii) is wheat ever grown well in lands which lack the characteristic winter rains of the Mediterranean area? The child should be trained to modify his generalisation when it does not fit the facts; yet this sentence suggests that a child should receive some credit for a piece of thinking of this description. We are inclined to ask how it is possible that a child can get a wrong conclusion from a correct argument: if the conclusion deny the facts, the argument is incorrect; if the conclusion is wrong, the complete argument must equally be incorrect.

This appears to us the only serious blemish in a report which probably represents the mean opinion between the extreme opinions held by the many people distinguished in reference to the teaching of geography who have given up so much of their time to the production of this report, which cannot be other than a boon to the busy teacher, both head and assistant, who wishes to keep pace with the developments of method in the teaching of geography on modern lines.

#### PERSONAL PARAGRAPHS.

ANOTHER Cambridge college has lost its master. Mr. William Chawner, master of Emmanuel College, died recently at the age of sixty-three, having been born in February, 1848. Educated at Rossall School, he went up to Emmanuel as an exhibitor in 1867, was elected scholar the following year, and graduated in 1871 as fifth classic. In the same year he was elected to a fellowship, and in the next was Hulsean prizeman. After a short experience on

<sup>1</sup> Italics ours.

the staff of Winchester College, he returned to his college as tutor, and began a successful period of some twenty years in that capacity. He made an excellent tutor, being a good classical coach, and having a sound instinct for the proper limits of discipline. Among others with whom he was associated were Dr. Phear, the late master, who survives him, Dr. Hort, Dr. Randall Creighton, and Dr. Murray. On Dr. Phear's resignation, in 1895, Mr. Chawner was elected head of the college. He did good work for the University as Vice-Chancellor (1899-1901), and as secretary for some years of the Board of Indian Civil Service Studies. A Liberal in politics, he was in strong sympathy with such reform movements as the encouragement of working men and of students preparing for work in elementary schools.

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I SEE that Dr. Rouse has been summoned for caning a boy. In the case of day schools there is, between the spheres of parent and master, a strip of undecided territory on which battles might often be fought, but, happily, the good sense of both parties prevents affrays from being frequent. I am inclined to think that, in such cases, the headmaster does his school, the individual boy, and the parents a real service when he takes a strong line and brings under his jurisdiction everything that is vitally connected with the interest of the school, provided that, as Dr. Rouse seems to have done, he lets parents know quite definitely the rules he makes. Besides the question of attendance, there is the (legally) awkward problem of responsibility for the behaviour of boys in transit. Most of us know of cases where the behaviour of boys in railway trains causes serious inconvenience to other passengers and company's servants. This is a case in which, whatever may be the law, firm action by a headmaster confers a benefit on his school and the neighbourhood. I have known instances in which a little wise co-operation between railway and school officials has effectively put a stop to the railway hooliganism of grammar-school boys. It is the small boy who is generally the worst sufferer.

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THE governors of Newport (Essex) Grammar School have unanimously elected the Rev. Frank J. S. Wyeth, M.A., of St. John's College, Cambridge, and B.Sc. Lond., headmaster in succession to Mr. W. Waterhouse, M.A., who will retire at the end of the ensuing summer term. Mr. Wyeth took a first class in the Natural Science Tripos in 1899, and a second in the History Tripos in 1900. He has added to these qualifications B.Sc. (first class) Lond., 1907, and the Teaching Diploma L.C.P. (London, 1901). His practical experience includes work since 1904 as senior science and history master at Elizabeth College, Guernsey, and as States analyst of Guernsey. Previously he was science and house master at King Alfred's Grammar School, Wantage, and science master at Hastings Grammar School, and at Whitgift Grammar School, Croydon.

IN connection with this appointment should be noted the intention of the governors of Newport School to impart to the curriculum a rural bias which is not found in any other Essex school. The purpose is to give a thoroughly sound general education, and while avoiding a purely agricultural training, to supply what other countries have succeeded in supplying—a general education with a rural bias. The problem in respect to the rural subjects which the Board of Education would like to see introduced into country elementary schools is (apart from the perpetual problem of money) where to find the teachers. The Newport School should perform a useful function in its county by training such teachers of rural subjects for elementary and other schools.

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TO Mrs. Bryant, headmistress of the North London Collegiate School, a graceful honour was recently done when her portrait, painted by Mr. Ralph Peacock, was unveiled and presented to the governors to be hung in the school hall with that of the founder, Frances Mary Buss. The occasion for marking appreciation of her service to the school was the opening of the new buildings last year. Sir William Collins, who presided over the gathering, recalled Mrs. Bryant's public services in connection with the University of London and the London County Council. The portrait was unveiled by Miss Sara Burstall, president of the Headmistresses' Association.

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THE headmaster of Winchester, Dr. Burge, has returned to England with health and eyesight restored.

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ON the resignation of Miss B. A. Lees, Miss M. Hayes Robinson has been appointed resident tutor in history at Somerville College, Oxford. She has been lecturer in history at the Royal Holloway College, and was formerly a student at St. Hilda's Hall, Oxford.

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DR. GOUDGE's successor as principal of Wells Theological College will be the Rev. R. G. Parsons, fellow and chaplain of University College, Oxford.

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MR. EDWARD RAILE TIMS, late of the cadets' training ship *Britannia*, died recently at the age of sixty-three. He was educated at Cambridge, became a schoolmaster, and then joined the Royal Navy, in 1872, as a naval instructor. He retired from active work as senior naval instructor in 1906. He was a good cricketer, good golfer, and good fellow.

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AT the age of sixty-three also died the Rev. Charles T. Crutwell, rector of Ewelme and canon residentiary of Peterborough. He was educated at Merchant Taylors' School and St. John's College, Oxford, and took first classes in classical "Mods" and Lit. Hum. He won the Pusey and Ellerton scholarship in 1869, and the Kennicott in

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1872, and was also Craven scholar in 1871. He was elected to a fellowship at Merton College, and became tutor in 1874. After holding a curacy at St. Giles', Oxford, in 1878, he was appointed headmaster of Bradfield College, and of Malvern in 1880. In 1901 Lord Salisbury nominated him to the Crown benefice of that pretty Oxford village, Ewelme, near Wallingford. To classical students his name is familiar as the author of a "History of Roman Literature" and of "Specimens of Roman Literature," both useful books.

ONLOOKER.

## CAMBRIDGE LOCAL EXAMINATIONS, 1910.

### HINTS TO TEACHERS FROM THE EXAMINERS' REPORTS.

**COMPULSORY SECTION.**—A question in the *Preliminary* paper in *Arithmetic* in addition (metric system) was not often attempted, and few of the candidates got the result correct to the nearest unit. In the division of one decimal by another the decimal point was often misplaced. A number of candidates seemed to have no idea of doing a question by the method of practice, and did not appear to know what was meant by percentage. Questions on interest were generally set down in the right way, though the answer was not always correct. A question on profit and loss was beyond the reach of most of the candidates.

In July the metric system was not clearly understood by many *Junior* candidates, kilometres being confused with millimetres, and so on. Mistakes as to the position of the decimal point were frequent. In many cases work in division and multiplication, which could not have been done mentally, was not shown. A very serious fault in many papers was the absence of explanation of masses of figures. In December, candidates spoilt their work, in some cases by ignorance of the methods of solution, but more frequently by sheer inaccuracy in the simplest operations, as well as by copying incorrectly figures in the printed questions or in their own work. The examiners are unanimous in representing strongly that accuracy in arithmetic is of the highest importance, and that it can be obtained by proper teaching, namely, by making pupils verify each step of the work before proceeding to the next; they therefore concur in pointing out as a most serious matter that the large majority of the answers sent up were defective through such inaccuracies. Teachers of arithmetic should make every endeavour to remedy this grave defect.

It was noticeable, especially in the July examination, that questions involving thought were not so well done by *Senior* candidates as those merely requiring the application of definite rules.

**ENGLISH SECTIONS.**—The work of *Preliminary* candidates in *English grammar* was somewhat uneven. The correction of ungrammatical sentences was seldom complete, and wrong reasons were frequently assigned for the corrections. Many mistakes were made in dealing with the present participle and the infinitive and subjunctive moods.

Many *Junior* candidates failed to recognise the nominative absolute, and even more went wrong over the past tense and past participle of *lay*. There was some haziness as to the function of tense, and many failed in the comparison of adverbs and in giving the exact meaning

and the origin of certain suffixes. The analysis showed considerable improvement, but there was confusion between *clause* and *phrase*.

In *English composition*, the style of *Preliminary* candidates was not always all that could be desired, the great faults being the repetition of nouns and the awkward handling of pronouns. The meaning of stops seems scarcely to be grasped: candidates should know that a comma cannot be placed between the subject and the verb in a simple sentence. The use of the note of interrogation and of the hyphen was commonly disregarded.

In the *English composition* of the *Juniors*, among the boys the chief faults were weakness of arrangement and failure to make proper use of division into paragraphs; among the girls, poverty of ideas and artificiality of style. The questions dealing with faulty constructions and words misused were, on the whole, fairly well treated; but in giving reasons for the changes which they made, too many thought it sufficient to say that the original was ungrammatical or poor in sound. Improvement was shown in the writing of letters; but some, especially among the boys, have yet to learn what is meant by a letter in the third person; and in writing in the first person many did not know how to deal with the address, the date, and the name of the person addressed, or how to end a letter.

In December, in many *Senior* papers, no stops except commas were used, and there was a total absence of paragraphs. The boys were better acquainted than the girls with the meaning of certain proverbial phrases, but their explanations were often wanting in clearness and brevity, and their illustrations inappropriate.

In the paper on Shakespeare's "Twelfth Night," the points of allusions were often missed or left unexplained by *Junior* candidates. Paraphrasing was not very well done, the sense being missed in many cases, obsolete words retained, difficulties evaded, or merely verbal changes made. The boys did this exercise rather better than the girls. There was a very general lack of intelligence in answering questions which required clear and discriminative answers. Candidates should be warned that lengthy quotation (often without note or comment) is not an intelligent way of answering questions, and far less effective than plain and concise statements in their own words. What was chiefly lacking in the great majority of the *Senior* papers was an intelligent appreciation of the play as a whole, and of the dramatic significance of the parts played in it by the leading characters. With this defect there was apparent a distressing irrelevance and want of proportion in answers to questions that had no direct reference to particular passages. Much of this irrelevance and prolixity—noticeable especially in the work of the girls and in the December examination—was due to insufficient consideration of the actual terms of the question. The paraphrasing, both in July and in December, was again a weak feature. Not only were the paraphrases, in many cases, loose and vague, but the actual meaning of some sentences was completely misunderstood by a large number of candidates.

In the *Senior* papers in *English literature* there were many whose knowledge was confined to an imperfect study of specimen extracts or to the learning (sometimes by rote) of an analysis or descriptive paragraph in some manual of literature. It cannot be too strongly pointed out that such labour—useless in itself—is also useless for examination purposes. The successful candidates generally answered a question on the identification of passages extremely well: they were not always so successful in

giving the context, often confusing the term *context* with *outline*.

In the *Junior English history* papers questions requiring an intelligent application of knowledge were not very often well done; a catalogue of naval victories was considered an adequate account of the results of England's naval supremacy in the Napoleonic era; narrative was given where discussion was required, and *vice versa*. In all the periods different persons and events were often confused. The distrust of dates seemed to have been pushed to an extreme in some schools.

The real points of questions which tested the intelligence and not the memory were deliberately evaded by *Senior* candidates, and it was clear that candidates wrote down answers learnt by rote. The meaning of ordinary historical terms was unknown to numerous candidates, and the answers to social and economic questions were vague and unintelligible. There is no doubt that larger text-books should be read in schools, in order that pupils may acquire a rational conception of the broader issues of historical movements, and that much less importance should be attached to the memorising of small details and trivial dates.

The principal features of the *Geography* papers of *Preliminary* candidates in the December examination were (i) the excellent answers on commercial geography, and (ii) the pooriness of the answers on the physical features of Great Britain and the world in general. The descriptions of the different mountains, plains, lakes, &c., were usually meagre in the extreme, and it seemed the great object of many candidates to limit their answers to one word, such as "mountains" for the Alps. Fuller descriptions should be given, and it seems desirable that more time should be devoted to this attractive side of geography. Diagrams were sometimes given, and these served the useful purpose of showing what the writer really intended.

The *Junior* candidates in July had not studied *Geography*. Though the question on Canadian winters called forth a larger number of sound than of worthless answers, the candidates, as a rule, showed but a slight acquaintance with the geography of Japan; for this, however, the text-books are most to blame. In December a large fraction of the candidates were entirely unprepared for an examination in geography. The sketch-map of south-east England was too often ludicrously drawn, but the towns and rivers required were moderately well inserted. Not 5 per cent. of the candidates gave the direct railway route from London to Portsmouth. In regard to China and Japan, their size, population, and mineral wealth, there was a display of great ignorance. The answers on physical geography given at several centres were intelligent and clear, but at most centres they were worthless.

A very common fault of *Senior* candidates was the drawing of maps on too small a scale, many otherwise excellent maps being drawn so small as to be hardly decipherable. There was much evidence of the lack of sound teaching of the simplest climatic conditions, answers to questions on the deserts of Africa and the climates of Cape Colony and Canada showing commonly complete ignorance of the outlines of the general wind-system of the world. Political geography had also been neglected. There was great ignorance of the most salient features of the political partition of South Africa. More attention might well be paid to comparisons of size. One of the most striking features of the papers as a whole was the prevalent confusion of "east" with "west."

CLASSICAL SECTION.—A large proportion of the *Junior*

candidates had obviously taken the examination in *Latin* with insufficient preparation. The worst feature of the answers was the parsing, which was exceedingly bad. In July the general average of the candidate's work in *easy unprepared translation* was low, and only at a few of the larger centres was a satisfactory level maintained. There was a strongly marked tendency to confuse words of somewhat similar appearance, and to disregard entirely the terminations of words. In December at several of the larger centres a number of beginners were entered who were incapable of translating a single complete sentence.

The *Latin composition*, though quite up to former averages in July, and somewhat above them in December, was still weak. Many versions were spoilt by elementary mistakes, and only a minority showed much feeling for Latin idiom. But the work of several centres was quite satisfactory, and in December even brilliant by comparison, showing what can be done by careful teaching.

In the *Latin* papers of *Senior* candidates the renderings of the Livy and the Cicero were too often inaccurate or unintelligent; throughout it was evident that insufficient attention had been paid to grammatical structure in the preparation of the set books.

MODERN LANGUAGES SECTION.—A large number of the *Preliminary French* papers were marred by inaccuracy, especially in the spelling of both French and English words. The knowledge of cardinal numbers shown was satisfactory, but the questions on pronouns were poorly answered. The questions on verbs which required nothing but the writing down of forms were very fairly done, but those which demanded the application of such knowledge to the translation of simple sentences or to the changing of the tense in French sentences were too often failures. Translation into English was good, except in the case of some papers which plainly owed much to guessing; translation into French was weak. The composition of short and simple original French sentences on given subjects was done well and intelligently in a limited number of cases, but in many papers the sentences were spoilt by disregard or ignorance of fundamental grammatical rules, the use of the articles and the conjugation of the verbs being specially weak.

There was much vagueness and uncertainty with regard to the verbs in the *Junior French* papers, the spelling of which was in many cases very wild. In the December examination a very large number of answers were marked by gross inattention to the place of pronouns in interrogative sentences and with verbs in the imperative mood. The short sentences, to be translated into French, were poorly done by all but a few. The translation of the continuous passage into French was only fair—and this more from carelessness than want of knowledge. The number of successes would be considerably increased by attention to the common concords and accuracy in the use of the various parts of familiar verbs. Even in the good papers there were signs of careless preparation. The idiomatic expressions were generally rendered wrongly or in unidiomatic English, and many words were not known at all. In many cases the renderings were meaningless, or even expressed the reverse of what was meant by the French text. Evidently a good deal had been committed to memory without proper understanding of the construction.

In the July examination a large number of candidates did not attempt the piece of French poetry. Many papers showed no sign of an effort to understand the passages; words seemed to be often translated at random without any attempt to make sense. Too little attention was paid

to tenses, and to the prepositions and conjunctions. One very weak point was the inability to render the French imperfect tense into idiomatic English.

The answers of *Senior* candidates to the French grammar questions were unsatisfactory. The irregular verbs were very badly known, and many elementary grammatical blunders were made in the translation of easy idiomatic sentences. The unprepared translation was badly done on the whole, and good papers were very rare. A large number of papers were characterised by lack of vocabulary both in French and in English, and by a general readiness to write nonsense. The English was often quite incorrect, especially as regards spelling, punctuation, and the use of prepositions. Serious faults of syntax were also quite frequent.

**MATHEMATICAL SECTION.**—The practical work in *Geometry* was distinctly well done by many *Preliminary* candidates, but the theoretical part of the paper was prolific of failures. The answers sent up by the girl candidates were generally poor in quality. In the practical work some candidates misread their rulers and protractors, both in drawing figures and in measuring figures correctly drawn.

In the *Junior* papers, the proofs of the propositions set were generally clear and sound, but in many cases the proof offered of the congruency of two triangles with the three sides of each respectively equal amounted to little more than a statement of the result; and attempts, by the method of "turning," to prove that straight lines are parallel when a transversal makes alternate angles equal, were not often successful, as few candidates appeared to understand the reasoning. Many candidates assumed that the diagonals of *any* quadrilateral bisect each other, or that a quadrilateral the diagonals of which are equal is necessarily a parallelogram. It seems clear that in most cases the unsatisfactory results were caused by inferior teaching; at some centres the answers were uniformly bad, while at others the work reached a high standard, in marked contrast to the general mediocrity. At many schools arithmetical and algebraical methods had been used too freely, with the result that proofs were sent in which could not be called geometrical in any sense of the word.

The work of the *Seniors* in geometry was, on the whole, fair, but was often marred by a lax treatment of the proofs of fundamental propositions. Great diversity of opinion was shown as to what might be assumed, and too many assumed the very thing of which proof was required.

Though much excellent work in *Algebra* was sent in by *Preliminary* candidates both in July and in December, clear proof was given in many quarters of unsatisfactory teaching of first principles. A large number of candidates, especially among the girls, showed no knowledge whatever of the subject. The negative sign was not made to affect the whole of a following compound term; on the other hand, statements of the type  $n \times ab = na \times nb$  were very common. Fractions, numerical and literal, were simplified by discarding the denominator, and multiplied or added haphazard. Only a few correctly solved the questions on generalised arithmetic, especially in December. The solution of quadratics was often attempted by an incorrectly quoted formula, or by factors which a test would have proved wrong. In progressions many good answers were given by simply writing down the terms, while incorrect results were obtained from ill-digested formulæ. Considerable improvement was shown in graphs, though the required scale was not always used. Very few employed their graphs to solve the given equation. The examiners

do not hesitate to say that there is a call for considerable improvement in the teaching of the elements of algebra.

Both in July and in December a considerable proportion of the *Junior* candidates were unable to determine the highest common factor of two given expressions. In July the equations in the less advanced part of the paper were generally well solved, but in December very few succeeded in solving correctly a pair of simultaneous equations with literal coefficients.

The drawing of graphs by *Seniors* was fairly satisfactory, and many of the candidates obtained approximate solutions of equations correctly from their graphs. The work on logarithms was frequently of no value, particularly in July, and, as in the preceding year, many candidates were unable to obtain antilogarithms from the tables of logarithms. Decided weakness was shown in the solution of problems. The proofs of theorems in permutations and combinations were rarely stated with sufficient clearness, although many candidates were evidently familiar with the formulæ, and could apply them correctly.

**NATURAL SCIENCES SECTIONS.**—The practical work in *Experimental Science of Junior* candidates, both in July and in December, was rather poor. The majority of the candidates either did not take any precautions against sources of error or did not write any statement as to such precautions, in spite of the fact that they were specially instructed to do so. The qualitative work in both examinations was done in a mechanical manner, and few candidates showed any intelligence in it.

The methods of weighing of the *Juniors* taking *Practical Chemistry* were not uniformly good, and some of the candidates exercised no discretion in the quantities taken. It was not unusual to find a weighing made to one significant figure only, and the result presented as a long series of decimals. The qualitative problems were better done than in the preceding year, though confirmatory tests were often omitted.

Many of the *Senior* candidates, judging from their answers in *Theoretical Chemistry*, appeared to have been drilled in manipulation without acquiring much knowledge or power to reason. The December *Senior* candidates in many cases failed to make correct observations in their *Practical Chemistry*, and drew quite unjustifiable inferences.

The *Junior* candidates taking *Sound and Light* fell under two markedly distinct types: (i) those who had had good teaching, accompanied by some *practical work*: they found the paper easy and answered intelligently; (ii) those who had apparently read some text-book without guidance: they could do little or nothing with the questions. Attention is directed to these prevalent errors: the slip "mirror" for "lens"; the confusion between *real* and *virtual* images, often when the work was correct; the notion that a fish or stick under water is seen by rays "proceeding from the eye"—a strange view which was apparently held by about one quarter of the candidates, including many of the best.

The question which proved the greatest stumbling-block to *Senior* candidates taking *Heat* was one on the determination of the coefficient of expansion of a liquid by means of a weight thermometer. There were hardly any correct answers to this question, most of the candidates measuring the expansion in grams.

The standard of attainment in *Botany* among *Preliminary* candidates was, as a rule, low, the candidates at some centres showing little knowledge of even the most elementary parts of the subject. Many possessed the vaguest notions as to the growth of green plants, and the



functions of various plant organs were frequently unknown.

The common objects of everyday life were just those of which least knowledge was shown by *Junior* candidates in *Botany*; for instance, very few of the candidates could give any intelligent account of the structure of a deal board or of the life-history of an herbaceous perennial. A pleasing feature of both examinations was the attention devoted to physiology, as evidenced by the uniformly good descriptions of the experiments. A very common error, however, attributed the ascent of water to osmosis, and the influence of transpiration was almost wholly disregarded.

In general, the work of the *Seniors* in *Botany* showed the lack of a thoroughly practical basis, and in their descriptions of common wild plants the candidates showed a want of familiarity with the actual plants in their environment. In describing the specimens provided, the candidates showed a general tendency to rely on book-knowledge rather than to give the results of examination of the specimen before them. Better answers were given to questions involving a knowledge of physiological experiment, but many illogical deductions were made. Much inaccurate information was given in December on the subject of root-action and osmosis.

Many *Senior* candidates were sent in quite unprepared for the examination in *Physiology and Hygiene*, having learnt merely a few rules of health. It cannot be too much insisted upon that no intelligent knowledge of hygiene can be acquired without an elementary acquaintance with the simpler physiological processes. The structure of the organs can be easily learnt from direct observation, but there was abundant evidence that this practical teaching had been generally omitted. The questions on the circulation were poorly answered. Many candidates could not describe the movements of the chest in respiration, and did not understand the effect on the lungs of the pressure of the air. The questions on digestion, however, were fairly well answered, although very few knew the structure of the salivary glands, and many confused carbohydrates with fat or gave starch as a constituent of meat. Hydrogen was frequently given as one of the gases of the blood, although a question on this subject was, on the whole, not badly answered. Very few candidates knew anything about renal excretion, but many answered fairly well the questions on the teeth and on ventilation. On the whole, the work cannot be considered satisfactory, the want of success being largely due to the lack of practical illustration.

As in previous years, the answers of *Seniors* to the questions in *Physical Geography* on land-forms and earth-sculpture were in most cases very poor; in only a few cases were satisfactory accounts given of the ways in which mountains are formed. The questions on oceans were also rather badly done. Many of the candidates described the form of the ocean-floor and the causes of ocean-currents fairly well, but few knew anything about the vertical distribution of temperature in the sea. In a large proportion of the answers "soil" was regarded as synonymous with "sedimentary rocks." In many cases the phenomena of denudation and accretion on coasts were confused with those of movements of depression and elevation.

In the July examination *Junior* candidates offering *Book-keeping* were at some centres entered with quite insufficient preparation; for instance, some had apparently not been taught the meaning and use of a trial balance. None of the candidates were able to answer satisfactorily a question dealing with the correction of errors.

## A SYSTEM OF NATIONAL EDUCATION.<sup>1</sup>

By Miss ISABEL CLEGHORN, L.I.A.

THIRING, of Uppingham, once said, "Education means the transmission of life by the living, through the living, to the living." Education is a means to an end. That end should be life in its fullest sense, life with high aims, with lofty ideals; yet, withal, practical life—life that is the centre of usefulness, of helpfulness, of hopefulness—the life that is not ashamed to work—the life that is ready to lead or follow, according to its bent or ability. Adult life is the coping-stone of our educational building, the top rung of the ladder of our school system. Are we satisfied with the results, apparent or real, of the edifice erected, of the ladder set up? Is our present system of education a success or a failure? We know that many of the social evils of the day are, rightly or wrongly, ascribed to faulty educational methods. The "products" of our elementary schools are quoted as proving the failure of our system. The hooligan, the loafer, the unemployable, the failures in life's battles are said to have become such, because of (not in spite of) their training in the schools of the people.

Do we think that unemployment, sweated labour, overcrowding, drunkenness, and every other kind of twentieth-century misery is due to an imperfect system of education? We do not; but at the same time we are fully aware of much that is faulty in the field of education. Our hedges have many gaps; our sowing and reaping are alike hampered by ever-recurring, ever-uprooting educational quarrels, by ever-changing codal requirements, by ever-increasing fads and fancies of people in power—be they administrators or inspectors. We find ourselves too often thrown against a wall of prejudice and opposition, we face the cast-iron rule of superior authority that too often forbids the exercise of that freedom necessary to carry out the ideals of education that crowd into our minds. The rigid time-table, the cast-iron syllabus, the too detailed scheme of work, the overcrowded curriculum, accompanied as they are by a large amount of regular irregularity of attendance; classes still too large, floor space and playground often insufficient, staffing meagre, and, above all, financial threatenings that take the heart out of teachers—all these create an educational unrest that militates against success, that stifles initiative.

Do increased intelligence and ability to overcome difficulties count for nothing? Do our detractors forget how often our elementary schools are skimmed to fill the secondary and higher grade schools? Do they forget how many scholars from our primary schools have, in spite of all obstacles, risen to rank and fame? Have we not all reason to be proud of some of our products? Do employers take the trouble to inquire into the life-history of the so-called product that happens to cross their path and does not approach their standard of qualification for any particular office? Do they ask as to his attendance at school, his antecedents, his home surroundings, his natural aptitudes, and how they have been provided for? It seems to me that what is wanted is a little more real insight into the work with all its difficulties and drawbacks, a little less advice, a little less fault-finding, and a great deal more true sympathy and encouragement. Who is to give it? Inspectors should, and many of them do; but too often the inspectorial visit is time wasted on trifling details, a mere justification of office by one who knows little about the continual strain and worry of the

<sup>1</sup> From the presidential address delivered at the forty-second annual conference of the National Union of Teachers on Monday, April 17th, 1911.

work, but judges all schools and scholars alike, expecting from all the same standard of attainments, forgetting home surroundings and influences, forgetting poverty and underfeeding, forgetting irregularity of attendance, but expecting intelligence, brightness, and receptiveness, without always knowing how to encourage and obtain them.

In watching the ascension up the school ladder, we women teachers feel that, in at any rate many of our large town schools, enough care is not taken to give the infants a sufficiently long stay in the infants' department. Children are now generally admitted at the age of five years, which in some cases is five plus or even six—for many are the ways of evading a disliked law. Then, what happens? The school year ends when these children are any age between six and seven years, perhaps only just six, and transfer is made to the higher department, transfer not always on account of fitness or attainments, but often transfer to suit the accommodation above. It is not only a question of accommodation, but of grant-earning, and these same factors lead to similar undue promotions throughout many of our large schools.

Leaving the infants, let us concentrate our attention for a few minutes on the child of larger growth, the boy or girl now promoted to be a "big boy" or a "big girl." What fault have I to find with the transition? It seems to me there should be less differentiation between the methods and work of the two departments. The infant too often finds himself like a fish taken out of a pond and put into a pickle bottle. From a life of almost unrestrained "learning made easy," he or she is often introduced into a monotonous round of instruction and examination, becoming the victim of the too rigid time-table and the too detailed syllabus. His imagination is often repressed, his desire to make friends with his teacher checked, for there is no time for interchange of ideas on subjects outside the work of the school. Yet these children still retain their love of movement, their vivid imagination, their perceptive faculties, their appreciation of light and shade, colour and shape, and above all their desire to create, to build, to do. We should like a more gradual alteration of methods—more play, more practical work, more physical exercise, shorter lessons, perhaps a little more sympathy and encouragement in recognition of the sudden change from the one system to the other.

Please do not think I am blaming the teacher. It is the system that is at fault. The system that fosters the idea that the be-all and end-all of school life is book learning, that the six millions in our schools are to be clerks or accountants, or that they are budding authors, or preachers, or teachers. Luckily, many of the best educationists of to-day are arriving at the conclusion that the child is not brain only, but that he has muscles to be developed, senses to be sharpened, physical powers to be strengthened; that school should be the training ground, not only for mind, but for body, for action; that the end of school life is for the vast majority of our children the beginning of livelihood; and that we ought to endeavour to fit them equally for doing as well as thinking. Experience tells us that the bulk of our children are destined for industrial work, and yet we send them out of our schools absolutely unprepared for such work.

What is wanted to-day is the extension of school life and such reorganisation of education as will bring about that some of the time thus gained may be devoted to industrial and practical education for both boys and girls. What is it that the boy of ten years wants to know how to do most (and remember that wanting to know is the keynote to knowing)? Generally speaking, how to make

an engine; with the girl of the same age, how to dress a doll. Why do we try to repress all such natural instincts? Give the boy the necessary help to the right making of the engine, the girl the opportunity of learning how to dress her doll—both may enter into the ordinary manual or needlework or drawing lesson. Too often we only give work of this description to the mentally deficient in our special schools. In the same blundering fashion we teach the boy who is convicted of a theft a trade; the honest boy has to pick one up as best he may.

Summing up, then, I claim for the lower standards in our primary schools more freedom, more activity, a better bridge from the infants' school to the higher work of the upper department, more practical work. But you will say, "What is there to hinder all this?" Mainly the groove into which we have allowed ourselves to fall, added to the fads of a growing section of the modern inspectorate. No one is more willing than I am to pay tribute to the inspectors. There are many who visit our schools with a keen desire to help and with a sympathetic understanding of difficult work often accomplished under trying conditions. To such we look for inspiration, guidance, and encouragement, and we do not look in vain.

But there are too many inspectors who are entirely out of sympathy with our work. They mean well, but they do not understand. Many of them have never taught in an elementary school, have never come into contact with the children attending such schools. They are imbued, not with the facts of experience, but with the theories due to the want of it, and so we have the fads and the faddists. And, unfortunately, too many teachers are willing to accept, to adopt, even to believe in the evanescent theory that is here to-day and will be gone to-morrow.

So much for the earlier rungs of our ladder. Climbing upwards, let me carry you with me into some of the ideals I have in my mind of a perfected system of national education, a system that shall evolve out of our present system, when priest and politician have settled their differences, when all the grant-earning schools of the country are under the same kind of management, when education authorities are freed from the bugbear of an ever-increasing rate, when the Imperial Exchequer bears its fair share of the burden of national education, when parents begin to appreciate education, when teachers (and dare I say, inspectors?) are all trained for their work, all well paid, all satisfied, when the scholars love to learn and the teachers are apt to teach.

What do I wish to see under such Utopian conditions?

(1) In the ordinary day schools a later leaving age, a more suitable curriculum, smaller classes, a better attendance.

(2) Easier transition from primary to secondary school or class for all scholars about the age of twelve years.

(3) Variety of secondary schools or classes arranged to meet such transition.

(4) Recognition that all schools or classes taking children for higher work, be it literary, practical, technical, domestic, or artistic, are secondary, doing secondary work, and consequently should receive secondary grants.

(5) Continuation schools at which attendance for a certain number of hours during the week is compulsory for all children leaving school before the age of fifteen years, accompanied by a corresponding reduction in the hours of labour if necessary.

Our present system of education is complex, overlapping, and often ineffective. We have primary schools doing secondary work, but only receiving primary grants. We have secondary schools doing primary work and re-

ceiving an extra grant for doing what their very name should prevent their being allowed to do. We have schools where the usual leaving age of the scholar is thirteen, or even twelve years, where teachers are vainly attempting to educate scholars in all subjects in all details, and yet according to law fourteen years is the leaving age. The work that is thus ineffectually accomplished might easily be covered with two or three more years of school life; but such work is an utter impossibility under present leaving conditions, and only helps to swell the number of our so-called bad products. When such children, two or three years after leaving school, begin to realise their ignorance and attend our evening schools, or apply for some skilled employment, it is found that they have forgotten all, or nearly all, they had acquired in the day school. It has never been digested, much less assimilated. There is such a disease as educational dyspepsia. How would I cure this?

I would make all education up to the age of twelve years primary in name and in practice. It should include the arts of reading and writing, practical arithmetic, English, sufficient manual work to make the senses acute, the fingers supple, the eyes observant. Geography, history, nature lessons, hygiene, needlework and drawing, of course, would form part of the curriculum, but all in broad outline, no minute syllabuses, no examinations in detail. Above all, there should be no specialisation before the age of twelve years. There should be none of the present disorganisation of classes for the purpose of manual work, cookery, laundry, or domestic economy, but only such subjects as could be taught by the ordinary class teacher.

So far my ladder has been one. But after the age of twelve years I want a system of ladders by means of which all can climb, not necessarily to the university or the training college, but to the goal of their own individual ambitions. Secondary schools or classes of varying types to meet the demands of the localities should be organised to fulfil the essential duties of secondary schools, that is, to add to the education given in the primary schools, but in a more specialised manner. Why should the secondary education be only of a nature literary or theoretically technical or commercial? "Labour is prayer." Why should we by means of our school system cater only, or mainly, for those who are to be clerks or teachers, engineers or electricians? Why should we educate for the Civil Service or the Post Office, and omit to educate for the farm or the garden? Why not supply the education necessary for the plumber, the painter, the bootmaker, the dressmaker, or the domestic servant? All are equally utilitarian, according to the way we look at them and try to take our thoughts out of the groove of present practice.

Education should be an effective preparation for life. Life is many-sided; why prepare for one side and omit the preparation for all others? Is it because the men who frame our codes and syllabuses can look back only to their own method of education and where it led them? Is it because they fail to realise that just as much as their education prepared them for the university, the Government office, or the House of Commons, so there should be the right kind of education provided for other paths of life, where not only the head, but the hands also, may receive necessary preparation? It may be utilitarian; but so is all education in one way or another. Do let us rid ourselves of the idea that any kind of useful work is derogatory. We have as much right to prepare the lad whose future work will probably be in the mine with

some knowledge of mining lore, safety lamps, fire-damp; to give the children in our villages some form of education related to life on the land, as to prepare the prospective merchant prince in German and French, the prospective clergyman in Greek and Latin, the prospective man of science in mathematics and chemistry. But we don't do it. It is also quite as necessary, if not more so, to educate our girls for the duties of the home. The future wife, the future mother, the future servant or mistress—all have an undeniable right to obtain the best form of education to fit them for these high and sacred duties.

How, then, would I change our system of education so as to remedy this state of things—this creation of, first, the unemployed, and next the unemployable, for the one manufactures the other? I would endeavour to retain these children longer in the day school by making the day-school curriculum more practical. If parents knew that their children, in addition to continuing their ordinary English education, were also receiving some practical instruction in such things as would help them in the future towards a better livelihood, they would be willing to keep them longer at school and to forfeit the wage that at present serves as a magnet to draw the boy or girl into the labour market at thirteen years of age. That this necessity has already been acted upon in Germany is a well-known fact; that America is looking in the same direction is also abundantly proved. The Assistant Secretary of the Minister of Agriculture of the United States, writing in the *Munsey* in May last, said: "One of the best remedies for raising the submerged tenth is industrial education." But you may remind me we do not need to go either to Germany or America for our educational reforms, and I do not advocate any foreign system, as a whole or even as a part. We want our new system to evolve out of our old. English education is good and thorough within its present limitations.

Let us, then, try to realise an English ideal. I would have a variety of types of secondary education, formed either at the top of the primary school, like the Scotch supplementary courses, or as separate secondary schools suitable to the needs of the locality, dovetailing into one carefully arranged curriculum, intellectual with industrial training, to which children at about twelve years of age could graduate. Note I say graduate, for I do not believe in the examination system that exploits the brains of children without regard to their future. Parents and teachers should consult as to the future of the child when the time of transfer approaches. The child of commercial bent should go forward into a commercial secondary school or class, where for the next two to four years he should have the opportunity of continuing his ordinary English education, and adding to that the necessary subjects to fit him for commercial life. Others would each follow their bias towards literary, trade, artistic, or domestic careers, the last-named being compulsory, so far as possible, for all girls. Each locality would, of course, create its own types of secondary schools after due consideration of the necessities of the district, but, either by the extension of the leaving age up to fifteen years or by the compulsory attendance at continuation schools up to seventeen years, each child should have the opportunity of obtaining that kind of education most suited to its own particular bent of mind and to its capacity for benefiting by the system of education provided. Above all, these secondary schools should be free to all who are able to profit by them, and they should be on an equality with the present municipal secondary schools with regard to grants,

space, and staffing. Secondary education should be the coping-stone of primary, whatever its special line.

But, you will say, this is all in the future; come down to the present, concentrate on present conditions, and evolve some *modus operandi* for beginning at least a more practical system of education that later may become an ideal. What can we do at once? The most pressing need is the raising of the school age to fourteen years, and eventually fifteen years, doing away with all the bypaths to exemption below that age. Do away with half-time, that canker of the north, that saps the strength and intelligence of our growing boys and girls, that creates old men and old women at eleven or twelve years of age.

What next? Clearly a new system of secondary education, including domestic and trade, as well as commercial and literary education, would take time, would require educative impulse, to say nothing of legislation—revolution in some of our present institutions—evolution in many more. But experiments might be tried; domestic or trade centres added to present schools and made part of future ones. Classes with vocational bias could be introduced into the present secondary schools, and trade schools gradually extended to the large industrial centres—such trade schools as are now to be found in London. The new central schools, recently commenced by the L.C.C., and the higher grade schools might be helped by secondary grants; domestic experimental schools, such as have already been tried in London, Leeds, Manchester, Darlington, and other places, might be encouraged elsewhere and supported by additional grants. Finally, why not endeavour to obtain for England the powers already granted to Scotland of enforcing compulsory attendance at continuation schools until the age of seventeen years, and so give at once a stimulus to a system of real education by means of many ladders instead of one?

### HISTORY AND CURRENT EVENTS.

A HUNDRED years ago, what was the condition of Europe? Napoleon Buonaparte, who had begun life as a poor Corsican, had risen to be Emperor of the French, and had exploited the military ardour of that people to carry out, in his mad, extravagant way, the traditional policy of the Bourbons towards Great Britain. His last great navy had been shattered at Trafalgar, and on the sea he was all but impotent. But he had so subjugated Europe that Prussia was reduced to powerlessness, Austria, crippled, had married an Archduchess to the "upstart," and the Tsar of Russia was his ally. Italy was at his feet, and Belgium and Holland had disappeared from the map of Europe. So far had the French Empire been extended that Rome at one extreme and the Elbe at the other served merely as names for French departments. How big it all was! A few more years and Britain's commerce would be destroyed, and Napoleon would be able to give "peace" to Europe. Yet he was only four years from Waterloo and St. Helena. So pass away all dreams of universal rule based on mere force.

AND now, a hundred years after the blunders in Spain and in Russia, we seem to be making steps towards another method of gaining "peace" for the world. An English statesman has echoed the thought of a United States President, and the English-speaking world, on the ruins of which Napoleon thought to base his empire, seems to be leading the way towards the ideal of which he talked. It has also been reported that the United States and Japan are beginning to feel their way towards laying

the foundations of a lasting peace in the Pacific. If these three Powers—Great Britain, the United States, and Japan—were to agree, some have begun to hope they might give the law to the nations in their mutual relations. But how? By making themselves strong for war. And that in naval preparation, for European land contests seem to have ceased these forty years, and Armageddon, if it comes, will be fought on the ocean, if indeed it be not in the air.

OUR readers are doubtless aware that for some thirty years there has been coming about a great change in the religious opinions of the more educated members of the Jewish Church-nation. Changes in practice have been inaugurated. Some are beginning to transfer the Sabbath from Saturday to Sunday, some are conducting their religious services in the speech of their everyday life. And among these changes we have lately seen an account of certain opinions expressed by several of their more learned members as to the character of the greatest of their race, and the way in which they should regard him. In order to understand this new way of thinking it is necessary to read carefully chapters five to twenty-six of Deuteronomy (especially the hortatory parts), which formed the book of the law promulgated in Josiah's reign under the influence of the prophetic school, to remember that this was the favourite book of Jesus Christ, and then to read the first seven chapters of the Acts of the Apostles, which tell the story of the Christian Church while it was still only a Jewish movement. Judaism seems to be beginning to revise the verdict of the Sanhedrin that took Jesus before Pilate.

### ITEMS OF INTEREST.

#### GENERAL.

THE Imperial Education Conference, to which educational representatives of the various parts of the Empire have been invited, will assemble in London as we go to press. This conference, which is an outcome of that which took place in 1907 under the auspices of the League of the Empire, is being held at the invitation of the Imperial Government, which expressed the desire that future conferences on the subject should be convened officially. The conference is being attended by representatives of all the home education departments—English, Scotch, and Irish—and by delegates from the Dominion of Canada, the Commonwealth of Australia, the Dominion of New Zealand, the Union Government of South Africa, the Crown Colonies, and several local Governments in India.

At the afternoon sessions of the Imperial Education Conference the following papers are to be read and followed by discussion. Tuesday, April 25th: Mr. H. J. Mackinder, M.P., on "The Teaching of Geography from an Imperial Point of View, and the Use which could and should be made of Visual Instruction"; Prof. H. E. Egerton, on "Some Aspects of the Teaching of Imperial History." Wednesday, April 26th: Mr. Marshall Jackman, on "Experimental Work in the Teaching of Arithmetic in Elementary Schools"; Mr. J. G. Legge, on "Practical Education in Elementary Schools"; Mr. J. Strong, on "Secondary Education in Scotland." Thursday, April 27th: Dr. J. A. Ewing, C.B., F.R.S., on "Engineering Education"; Mr. J. H. Reynolds, on "Higher Technical Instruction." Friday, April 28th: Mr. R. Blair, on "Trade Schools"; Mr. Graham Balfour, on "Continua-

tion Schools." These sessions will be held at the Foreign Office, and persons who have special knowledge of, or interest in, the various subjects which are to be dealt with at each particular session have been invited, but in view of the small space available the number of invitations has had to be strictly limited.

At a general meeting of members of the Incorporated Association of Assistant-masters in Secondary Schools, held on April 15th, the following resolutions were adopted: (i) That this association believes that education in secondary schools would be rendered far more efficient by an adequate scale of salaries, and by the provision of superannuation allowances; it desires to direct attention to the higher efficiency of German secondary schools, produced by better salaries, and the provision of sufficient pensions; and it calls upon legislative and administrative authorities to join with governing bodies in a general effort to provide adequate salaries, and a national scheme of superannuation allowances for teachers in secondary schools. (ii) That in the opinion of this association it is necessary and desirable, for the sake of national efficiency and for the benefit of the teaching profession, that there should be no further delay in constituting a registration council representative of the profession, in accordance with the Education (Administrative Provisions) Act, 1907, to which shall be entrusted the duty of forming and keeping an effective register of teachers.

On March 30th Mr. Runciman received a deputation of the Incorporated Association of Assistant-masters, which was introduced by Sir Philip Magnus, M.P. The deputation was decidedly strong, as it included, besides Mr. A. A. Somerville, Mr. Fred Charles, and Mr. G. H. Heath, such old friends of the association as Mr. T. E. Page and Mr. R. F. Cholmeley. The object of the interview was to try to persuade Mr. Runciman that the teachers eagerly desire a register, and that secondary-school teachers are inadequately paid in respect of salaries and superannuation allowances. Messrs. Somerville, Cholmeley, and Charles urged these matters from different points of view. Mr. Runciman, in his reply, thought that the subject of superannuation was too thorny to handle without more information. He said he felt keenly the points which had been raised with regard to inadequate salaries, and realised that low scales were detrimental to the efficiency of the schools. Of 168 schools fully inspected by the Board in 1910, nearly 50 were reported by the inspectors as having scales of salaries so low as to be detrimental to the efficiency of the schools. At the close of his remarks he said that when he had seen the association's superannuation proposals he would gladly consider them and confer with the Treasury. So far he was sympathetic; but among assistant-masters it seems to be agreed that he made too much of the points that some headmasterships are highly paid and that boarding-house masterships are sometimes very profitable. Mr. S. E. Winbolt voiced this view in a letter to the *Morning Post*. He urged that the "plums" of the profession are too few really to affect the argument, and that headmasterships often, and boarding-house masterships always, are positions to which conscientious educators cannot permit themselves to aspire. He also pointed out that though Germany requires higher qualifications from secondary-school teachers, the multifarious work of an English secondary-school teacher is very much more exacting than that of the German teacher. Lastly, he drives home the point that Mr. Runciman seemed half inclined to support,

that the disparity of salaries between headmasters and assistants in this country is a "crying scandal," and proved by French and German experience to be quite unnecessary.

READERS of THE SCHOOL WORLD will remember that in the article on Superannuation which appeared in the issue of December, 1910, the new arrangements of the London County Council were described. That scheme applies to every teacher under fifty-five years of age at the date of appointment who (i) holds a permanent full-time appointment in the service of the Council and does not contribute to the Superannuation and Provident Fund under either of the existing schemes; or (ii) holds a permanent full-time appointment in the service of the managers of non-provided schools in the County of London and contributes to the Deferred Annuity Fund. Now the General Purposes Committee and the Education Committee are considering the advisability of providing legislation in order to admit to the benefits of the scheme certificated teachers in non-provided schools who do not contribute to the Deferred Annuity Fund. If all such teachers join, the cost to the Council will be about £1,400 a year, together with about £15,000 which is the estimated amount which the Council would have to make good in respect of service before the date on which the teachers first contribute. While the Council is to be congratulated on seeking to make suitable provision for the old age of all teachers in non-provided, maintained, and aided schools, a word of regret is not out of place that its good work in this respect should be marred by its action in limiting salaries in all aided schools to its own scale and by its opposition to schemes of superannuation in aided schools when those schemes were more generous than its own.

SPEAKING at Lancaster on April 7th, Mr. Runciman referred to three educational reforms which he hopes soon to introduce, relating respectively to the training of teachers, half-timers, and continuation schools. At present many students in training departments connected with universities endeavour not only to work through their professional courses, but also to take a university degree at the end of their three years' training. Mr. Runciman proposes to provide, by administrative powers, that these young men and women shall have their first three years absolutely free for university work only, and during that time they will receive support from the State in just the same way as if they were taking the ordinary training. Then they will have a fourth year, in which they will be given a maintenance allowance with the payment of their fees, and in this year they can have the training necessary to fit them for their profession. Mr. Runciman also proposes this session to introduce a Bill dealing with the half-time question, and hopes to combine with that a scheme for continuation schools which will enable the gap to be filled between the time when boys and girls leave school and the time when they begin to think they ought to have a little more education.

MR. RUNCIMAN, speaking as the guest of the National Liberal Club, on April 10th, prophesied the passing of an Education Bill after the Parliament Bill has become law. He said he was aware that the teachers could give useful assistance towards the solution of educational problems, but he had to remind them that the schools existed, not for the sake of the teaching profession, but for the sake of the children. Developing this theme—work for the children—he pointed out that in the elementary as in the public schools the only way in which they could get good

teaching was by leaving the teacher in freedom to impress his own individuality upon the scholars. For this ideal teachers need the widest and fullest training.

In this connection, *The Schoolmaster* (April 15th), commenting on the Board of Education report for 1909-10, directs attention to the prospective scarcity of teachers; since the number of candidates now coming forward for the teaching profession does not appear to be adequate, the situation appears to be more serious than was the case last year. This question of the supply of teachers appears to suffer rapid vicissitudes. Last year there was a great outcry that many college-trained teachers were unable to secure employment, and yet during the months of February and March of this year an interesting correspondence between Sir James Yoxall and the Director of Education for Notts, Mr. C. J. Bristowe (published in *Education*, April 7th), reveals the fact that Mr. Bristowe, with the help of Sir James Yoxall and the secretary of the Joint Council of ex-Students of Training Colleges for Teachers, was only able to find one candidate for three vacancies in the service of his county.

DR. LEWIS WILLIAMS, medical superintendent, Bradford Education Authority, read a paper at a sectional meeting of the Conference of the National Union of Teachers on "The School Clinic," in which he described the work at Bradford, where there is an average attendance of school children of more than 37,000. The total number of children treated was in one year more than 6,400, and this gave rise to more than 19,000 attendances. The staff of the clinic consists of three medical officers, one dentist, two nurses, and two clerks, all of whom are full-time officers of the education authority. The cases treated at the clinic are those which are left after a double process of elimination. The first step is to eliminate all those cases of abnormal conditions for which there is provided adequate treatment either by parents or through voluntary associations or hospitals or by the agency of the poor law. The second process of elimination excludes all those cases which are referred for treatment to private doctors or hospitals. The work of the clinic then deals with two types of inspection and treatment: first, the control of scarlet fever and diphtheria; secondly, the treatment, and usually the cure, of cases of ringworm, defective vision, scabies, impetigo, verminous heads, suppurating ears, &c. The work of the clinic is necessarily complicated by its relation to the work of the school-attendance officers, whose duties have been enlarged so that they may secure the exclusion from attendance at school of abnormal children.

MR. T. P. SYKES, a former president of the N.U.T., read a paper at a sectional meeting of the conference upon the "Function and Position of H.M. Inspectors of Schools in the Elementary-school System." Having laid down the proposition that the schools of the country are the second line of defence, Mr. Sykes proceeded to enumerate some of the things which in his opinion H.M. inspector ought to do and do not do, and one of the grounds for holding this opinion was that such work would keep them out of mischief elsewhere. Some of this work includes the following: constituting the driving force on advisory committees charged with the work of the 1910 Education (Choice of Employment) Act; the supervision of the administration of the 1906 Education (Provision of Meals) Act; matters pertaining to the 1902 Education Act. The latter matters refer largely to the provision of ample elbow room and breathing space for the child in the elementary

as in the secondary school, the inordinate size of classes, the proper supply of competent certified teachers, and, finally, the adequate salaries of the elementary-school teachers. These are matters which H.M. inspector neglects or to which he is not allowed to attend—which alternative the speaker did not say. The second part of the paper dealt with the duties which H.M. inspector, in the speaker's opinion, were not rightly called upon to perform, and which the more conscientiously they were performed by the inspector, the worse for the children. He instanced in this connection the supervision of the minute details of the school time-table, the making of reports upon methods of teaching and school management, and adduced instances of harsh treatment which fell upon the teacher as a result of this work, which should not be done by H.M. inspector. The paper implies that, once a teacher is certified, he will do good work given good conditions and freedom, and that it is the business of H.M. inspector to secure these conditions and this freedom for the teacher, whose personal contact with his pupils is the matter of moment.

THE Teachers' Guild is taking an active part in the movement for furthering continued education. A resolution advocating the extension to England of the Act which enables local authorities in Scotland to enforce attendance at continuation classes will be proposed at the forthcoming conference at Worcester on June 3rd. In the meantime, the guild is urging local authorities in England to adopt the provisions of the Education (Choice of Employment) Act. This Act passed in November last, during a time when large issues were at stake in the field of politics, and attracted little attention. In the view of the guild, the local authorities may, by exercising their powers under the Act: (i) take a most necessary step towards co-ordinating the educational work of their areas; (ii) retain a guiding influence upon the training of boys and girls until the age of seventeen; (iii) interest employers in the work of education; (iv) bring the work of schools of every grade into closer touch with the home interests and future employments of their pupils; (v) close, or render less tempting, the avenues to blind-alley or undesirable employments for juveniles; (vi) secure the development of trade schools on wisely determined lines; (vii) improve the work of juvenile labour bureaux. The letter to the chairmen of education committees indicates the close association of the choice of employment and continued education, and suggests a scheme for the constitution of advisory subcommittees under the education committees, which should act in conjunction with the Board of Trade Labour Exchanges.

THE Teachers' Guild has also addressed a letter to Mr. Runciman approving the principle of co-operation between the education authorities and the labour exchanges, and, at the same time, urging that the education officer should have the power of deciding as to suitability of employment for applicants to the exchanges who are under seventeen years, and that the offices should be part of the education authority's offices. The object of this suggestion is to make the education office the natural place to which the juvenile applicant should go, except when the placing of boys and girls can be effected directly from school or home.

THE British Science Guild held its fifth annual meeting at the Mansion House on April 7th. The annual report was presented by Sir William White, and afforded evidence of steady work done by the association. The report also referred to many directions in which Government departments were tending towards realisation of the ideals of

the guild. Lord Haldane, as president, made the principal speech. He pointed out that although Germany had developed certain institutions for higher education such as we did not possess, yet evening classes were little known in Germany. The large growth of evening classes connected with technical colleges in England had not been without result, British goods having an unapproachable quality. Our readers will probably share our feeling of disappointment that Lord Haldane should consider evening classes, with their inevitable shortcomings, as seriously rivaling the thorough and lengthy training given in the great German polytechnics. Some may even question "the unapproachable quality" of our wares. We have a right to expect from the president of the British Science Guild guidance towards national improvement, without pessimism and without misplaced complacency. A very useful contribution towards clear thinking in these matters is printed as an appendix to the annual report, being the report of the Technical Education Committee, with short articles by Dr. H. T. Bovey, Prof. Meldola, Prof. R. A. Gregory, and Prof. Perry.

THE Board of Education has published a list of thirty-five holiday courses which will be held on the Continent at different times during the present year, but mostly in the summer months. The inclusion of a course in this list is not to be interpreted as the expression by the Board of any opinion as to its efficiency or otherwise. Eight of the courses are in German-speaking countries, viz., at Greifswald, Jena, Marburg, Salzburg, Göttingen, Neuweid, Lübeck, and Kaiserlautern; three in French Switzerland, at Geneva, Lausanne, and Neuchâtel; three in Spain, at Madrid, Burgos, and Santander; one in Italy, at Florence; and the rest in France, at Besançon, Dijon, Grenoble, Nancy, Boulogne, Bayeux, Granville, Caen, Honfleur, Lisieux, Paris, Rouen, St. Servan-St. Malo, St. Valéry-sur-Somme, Tours, Versailles, and Villerville. The table published by the Board of Education gives the date of each course, the fees, return fares from London, lowest cost of boarding, principal subjects of instruction, address of local secretary, and other details of importance to intending students. Copies of the paper (price 2d.) can be obtained direct from Messrs. Wyman and Sons, Ltd., Fetter Lane, London, E.C., or through any bookseller.

THE London County Council has recently decided to make a maintenance grant of £8,000 to the Imperial College of Science and Technology, South Kensington, S.W. In return for this grant it secures the privilege of nominating twenty-five students for one year's free instruction at the Imperial College. These places are to be filled as from October, 1911. The instruction will be of an advanced nature, and therefore only advanced students who are qualified to enter on the fourth year of the course should apply. There is no restriction as to income, but intending candidates must be ordinarily resident in the administrative County of London, and must be students at an institution aided, maintained, or approved by the Council for this purpose, who have attended regularly courses of instruction for at least two sessions. The free studentships do not entitle the holders to any maintenance grants, but cover all ordinary tuition fees. No examination will be adopted for the final selection of the students from the applications received. The free studentships will be awarded on consideration of the past records of the candidates, the recommendations of their teachers, the course of study they intend to follow, and generally upon their fitness for advanced study in science applied to industry. It is quite possible that, in special cases, the

free places may be extended to two or more years. Application forms (T. 2/268) can be obtained from the Education Officer, London County Council, Victoria Embankment, London, W.C., and must be returned not later than Saturday, May 27th, 1911.

At the meeting of the Royal Geographical Society on March 27, Mr. H. J. Mackinder, M.P., dealt with the aims and methods of the new geography. He asked, can geography be treated usefully as an independent subject of study, teaching, and research, regard being had to the claims of other useful subjects, and to the limitations of time and money disposable? Two criteria, he thought, may be applied: is geography characterised by any such coherence of thought as will render it fit for a mental discipline? As regards research, does geography demand an apprenticeship to methods and implements which necessitate a certain amount of specialisation, and cannot otherwise be commanded? The object of the geographer is first to make maps and then to understand them. We have, first of all, observation of the facts, then we have the art of constructing the maps. Both science and art enter into the achievement of the map. The chief aim of the newer teaching has been to impart power of thinking geographically. Geographical thinking has nothing to do with the memory for names, very little indeed to do with words. A subject which aims at cultivating a wide and accurate background to the mind, while at the same time insisting on vividness and accuracy of conception in regard to the foreground, is admirably fitted to be an instrument of education. In research it is, above all, in suggestiveness and in verification that the geographically trained mind will excel, and these are surely the two most essential qualities needed. Geography has within it scientific elements, but it has also artistic and philosophical elements.

THE *Terra Nova* has returned to New Zealand after landing Captain Scott's three parties of Antarctic explorers. Captain Scott himself has made winter quarters near his old position in 1902. An eastern party is wintering on the Ross Ice Barrier, as it was prevented by the ice from reaching King Edward VII. Land, its proposed base. A western party is wintering near Cape Adare. Captain Scott reports at the end of January that all is well, although two ponies, one dog, and a motor sledge have been lost. The *Terra Nova* found the *Fram*, Nansen's old ship, in the Bay of Whales, where Captain Amundsen, the discoverer of the North-West Passage, appears to have established winter quarters. The latter fitted out the *Fram* with the intention of making a journey in the ice over the North Polar Sea, but on the way out to Cape Horn he telegraphed from Madeira to state that his objective had become Antarctica. He proposes to proceed with his north polar work after his attack on the South Pole. A Japanese expedition, which appears to be but indifferently equipped, is said to be on its way to King Edward VII. Land. Probably it will fail to make this objective, and have to winter on the Ice Barrier. Captain Scott by this time will have finished his depôt-making expedition, and will have returned to winter quarters.

THE first Congrès international de Pédologie, which is to be held at Brussels from August 12th to August 18th, will have for its object the co-ordination of work relating to the scientific study of children, with the view of establishing the fundamental principles of rational education. Communications should be addressed to the Secrétariat général du Congrès, 35, Avenue Paul de Jaer, à Bruxelles.



THE second International Moral Education Congress is to be held at The Hague in 1912. There are to be seven sessions, the first on Thursday, August 22nd, and the last on Tuesday, August 27th. The arrangements are in the hands of a national committee for Holland, which is thoroughly representative of all religions and all schools of thought; it is being aided by local committees in various countries; that for Great Britain consists of Prof. Adamson, Mr. Cloudesley Brereton, Dr. Sophie Bryant, Mr. St. George Lane Fox-Pitt, Mr. Harrold Johnson, Prof. Sadler, and Mr. Gustav Spiller, with Mr. Fred Charles as hon. sec. The programme deals with moral education and character building from various points of view. Further particulars will be issued shortly.

THE late Miss Mary Anne Ewart, of Coneyhurst, Ewhurst, Surrey, who died on February 19th, has left £30,000 to provide scholarships for women students at Newnham College, Cambridge, and Somerville College, Oxford. £20,000 is left for the foundation of scholarships and otherwise for the benefit of women students at Newnham College, Cambridge, or elsewhere. The money is to be applied in payment of two scholarships of not less than £100 or more than £200 per annum each, tenable for three years; also in payment of one travelling scholarship and of extra tutors at an establishment for the education of women, at Cambridge or elsewhere. Candidates for the scholarships must be needy women of not less than eighteen years of age, who are unmarried. The subjects of examination will be any ancient or modern languages or mathematics or physical science or general English or other literature or history, or any other subjects of study, without restriction, according as the trustees shall determine. Miss Ewart also left £10,000 for the foundation of scholarships or otherwise for the benefit of women students studying at Somerville College, Oxford, or elsewhere, the fund to be used for the payment of two scholarships of not less than £50 or more than £100 per annum, to be tenable for three years, and to be subject to such conditions as the bequest for Newnham College.

THE latest issue of *The Federal Magazine* contains an interesting illustrated article upon the Coronation, as well as various interesting items on the schools of the Empire.

NATURE-STUDY is to the fore in many of the educational magazines. *The Educational News* for April 7th contributes, among other matters of interest, a note on the making and keeping of an ant's nest in school.

*The Journal of Education* for April publishes its valuable annual list of educational associations, usually with their registered addresses and the names of the secretaries, and the amount of the annual subscription.

THE March-April issue of *The Federal Magazine* gives useful information with regard to Empire Day and Coronation festivities. It includes a programme for tableaux and processions, together with a list of the dominion and colonial flags. An Empire Day address is also given.

A PICTURESQUELY written account of the international aspects of the Boy Scout Movement in relation to the attempts at similar work in Germany and the United States appears in the April number of *The School Review*. Dr. Kolbe, an enthusiastic Berlin schoolmaster, has instituted the Wandervogel, while in the United States Ernest Thompson Seton and Dan Beard began separate organisations, which have now been merged and are adopting the title of the Boy Scouts of America.

*The Irish School Weekly* for April 8th gives some particulars as to overcrowding in the Belfast schools, taken from the report of H.M. inspector. At a school with accommodation for 232, 324 children were in attendance, while 73 were taught in a room for 44, and 116 in a room for 47. In another school 103 children were given a conversational lesson in a room 16 by 15 feet, accommodating 24. In this room 49 babies spent their school day. These are but two of many examples.

THE April issue of *The Toynbee Record* takes the form of an educational number, and contains several articles of more than local interest. In an essay on elementary education, Mr. Harold Lacey summarises optimistically the improvement in the administration and character of the work of English primary schools. Mr. Lacey is impressed by the deepening and widening in the whole conception of the function of elementary education. The primary-school system, he thinks, no longer stands in comparative isolation. It is now being expanded into connection with other parts of our educational system, and it is being recognised as an organic part of the greater and more complex social system. A second article is concerned with missionary education, while a third discusses the special needs of Post Office messengers.

THE State of Ohio has a commanding position just inside the Appalachian Barrier close to its western edge, with the River Ohio leading west and the Mohawk Valley preserving connection with the eastern seaboard of the United States. It extends through about  $3\frac{1}{2}^{\circ}$  of latitude, its mean annual isotherms lie between  $48^{\circ}$  and  $55^{\circ}$ , while the rainfall is, on the average, just under 40 inches. Its coal, petroleum, natural gas, are associated with the town of Pittsburg, and these perhaps tend to make the outsider overlook the great importance of the State, in comparison with its area, as regards agricultural products generally. These and other considerations have caused *The Journal of Geography* to devote the March issue to this State, so that all the articles have some bearing upon Ohio. The titles show the nature of the information in this number; some are: "Mineral Resources of Ohio," "The Ohio Valley in Relation to Early Ohio History," "Notes on Ohio's Railroads and Industries."

THE "Report and Abstracts of Evidence taken before the Departmental Committee on the Cost of School Buildings" (Cd. 5534, 1911, price 6d.) points out that the cost of erecting schools varies considerably in different localities, and states that "where thoroughly satisfactory school buildings have been provided at a cost below the average the reduction in expenditure has been obtained, not by any remarkable devices, but by a careful attention to small savings on numerous items." The committee recommends that local education authorities should have encouragement and facilities granted to them for the use of novel methods or materials in the construction of public elementary schools. It is not expected that sudden revolutions will occur in building construction of this type, but it is suggested that in the past the conditions have led to the adoption of a conservative attitude towards school buildings which is unwise.

THE April "Educational Supplement" of *The Times* contains an important contribution on "Modern Universities and their Government," from which we quote the concluding words: "It is a great experiment in government which the new universities are attempting. If they succeed in achieving a real partnership, a mutually respecting comity, between men of affairs and men of know-

ledge, they will have achieved something which will not only bring success to themselves, but which will react, in many indirect and unpredictable ways, upon the life of the community in which they are planted. There is something very noble in the idea of great merchants and great manufacturers contributing, not only their money, but their minds to the support and encouragement of learning. And if the great experiment is successful here, small doubt but that, in course of time, it will be applied elsewhere also, even in the ancient universities. But the risks of the experiment are as great as its opportunities. If the seats of learning are to be absolutely controlled by the money power, if learning is to become the handmaid of finance, and its professors merely the paid officials engaged by the wielders of finance, the result must be disastrous. It rests wholly with the councils of the new universities to determine along which of these lines they are to develop. Do they realise the seriousness of the issues which they are shaping? One of the main ways in which such a development would react upon the community as a whole lies in connection with the scheme of compulsory continuation schools outlined, so far as regards Munich, in *The School Review*, and concerning which Mr. Runciman has expressed his hope that great developments are to be expected in the near future.

THE advocates of "learning by doing" will welcome the experiment which the L.C.C. Education Committee has decided to try. The committee has recognised that many children are backward in school work because their intelligence has not been approached through the most suitable channel. It has been decided by way of experiment—in one school to begin with—to vary the curriculum by the introduction of a much larger proportion of manual work. Middle Row Council School, North Kensington, the school which has been selected, is attended by children whose social conditions are the worst possible for their physical and intellectual, not to say their moral, development, and unless the school can succeed in inspiring the children with an interest in life and an ideal far above anything provided for them in their home surroundings, the boys and girls are not likely to become useful citizens in the future. Experience of more than thirty years shows that some change of method is necessary in the school. From the moral point of view, perhaps, the most urgent necessity is to impress upon the boys, at any rate, the dignity of labour, while intellectually it is of paramount importance that they should become interested in mechanical work. At present, practically without exception, they leave immediately on attaining fourteen years of age and proceed, for the most part, to employment of an unskilled nature. There are no local industries. No attempt is to be made, of course, to turn the upper classes of the elementary school into a pre-apprenticeship school. The curriculum will be such as to give the children an intelligent appreciation of industrial occupations in general without attempting to train them for any one in particular, and to provide facilities for acquiring that manual dexterity which exerts a reaction on general intelligence and adapts the pupil for the subsequent acquisition of skill in any industry. As the curriculum is to contain much manual work, the committee has given some consideration to the relative merits of the various available media in which the boys should work. Of these, by general consent, wood and metal stand first in importance, but paper, cardboard, and clay will be the more suitable material for the introductory lessons. In the girls' department the curriculum of the school will be mainly of a domestic nature, and include some training in dress-making.

THE Board of Agriculture and Fisheries informs us that its diagrams of diseases of fruit and fruit-bearing plants have been reduced in price from 1s. to 6d. per sheet, post free. The full set of seven sheets may be obtained direct from the Board's offices (Whitehall, S.W.) price 3s. 3d. per set, post free. Remittances should be sent in the form of cheques or postal orders. Letters of application need not be stamped. Teachers of nature-study or rural science who are not familiar with the leaflets issued by the Board should send for a list of publications. The two hundred leaflets are obtainable either in two bound volumes at sixpence each, or in twelve sets, in each of which the leaflets deal with related subjects, at one penny each. They are the cheapest publications on rural science in existence in this country.

MISS C. L. THOMSON writes to say that her "First Book of English Literature, Part V.," noticed in our April number, is not an anthology, but a simply written history of English literature in the eighteenth century with illustrative extracts. We accept the correction.

#### SCOTTISH.

THE spring meeting of the Classical Association was held this year in Marischal College, Aberdeen. Prof. Harrower, who presided, referred to the great loss the association had sustained in the death of Prof. Butcher. Not only had he been the most brilliant scholar of his generation, but he was also one of the most successful professors that ever occupied a Scottish chair. He was one of the founders of their association, and had thrown himself heart and soul into its discussions. Dr. Watson, Royal High School, Edinburgh, afterwards submitted a report on "Latin in the Training Colleges." The object of the investigation was to find what facilities there were for the teaching of Latin in school prior to the course of training, and, secondly, in the training colleges themselves. As regards the former, the result of inquiries showed that a large proportion of intending teachers took no Latin during their school course, while as regards the latter two out of the four training colleges had no Latin course. The report, which raised several thorny problems, was remitted to the council for further consideration. A short discussion then followed upon the question of federation with the Classical Association of England. The complete independence of the Scottish Association was to be maintained, but a payment by any member of 3s. 6d. to the English body would entitle such a one to receive the volume of transactions and the annual report on the year's progress in classical learning, which were supplied to the public at present at 2s. 6d. each. It was agreed that the subject should come up for further consideration at the next meeting. In the afternoon Prof. Conway, Manchester, read a delightful paper on "Man and Nature in the Augustan Poets." The most charming part of his paper was that in which, by skilful analysis and happy translation, he brought out the transcendental element in Vergil's poetry.

THE REV. DR. SMITH, chairman of the Govan Parish School Board, in reviewing the work of the past two years, directed attention to the steady growth of expenditure occasioned by the increased demands of the Department. Every year saw additional duties laid upon School Boards. Though these necessitated greatly increased expenditure, the Department in many instances did not contribute a single penny to meet it. The whole burden was shifted on to the long-suffering ratepayer. During the past ten years the local rates had increased 93 per cent., while the grants from the Department had gone up only

32 per cent. School Boards in the past had been too supine in accepting the financial arrangements of the Department, and concerted action was now required on the part of all the Boards in order to secure that imperial funds should bear their fair share of all expenditure incurred through administering education according to the various successive Education Acts.

UNDER the auspices of the Association of Science Teachers (Western Branch), an exceedingly interesting and instructive exhibition of apparatus for the teaching of science was held in the physical laboratories of the Technical College, Glasgow. All the apparatus shown was designed by teachers, and most of it was also constructed by them. The exhibits, more than fifty in number, illustrated principles in light, heat, magnetism and electricity, chemistry, and biology. They reflected great credit upon the scientific knowledge and ingenuity of the teachers, as well as upon their craftsmanship and manipulative skill in wood, glass, and metals. Such exhibitions are of great professional value to teachers, as they place at the disposal of all the ripe experience and proved skill of the best masters in each branch of science.

At a meeting of the Scottish School Board Association, a report was submitted on the draft superannuation scheme for teachers. This showed that the total draft upon the Education Fund would not be less than £120,000, and might possibly reach £200,000. The effect of this serious depletion of the present funds would be to curtail the operations of the district committees and to extinguish the balance accruing to School Boards under section 17 of the Education Act of 1908. The meeting, after a full discussion, resolved to ask for a special grant from the Treasury to meet the loss thus entailed. Circular 437, restricting the curriculum of junior students in certain directions, was afterwards considered. The terms of the circular were attacked because they interfered with the liberty of the student to select his own subjects, and compelled all to follow one prescribed course. If no modification were allowed, the result would be to cut off junior students from preparation for entering upon a university course. Ultimately it was agreed to ask that the curriculum of the junior student should be the same as that of the ordinary secondary pupil, and a deputation was appointed to wait upon the Secretary for Scotland in connection therewith.

THE council of the Secondary Association has decided to hold a joint meeting of the different sectional associations interested in secondary education. This meeting will have as its main object the federation of all the bodies at present occupying the field of higher education. The promoters have evidently in view the example of the National Education Association of the United States, which embraces all sections of teachers, from the humblest rural teacher to the university president. The meetings of the association extend over a week. Certain seditious are fixed for the discussion of general educational principles, but for the most part the association resolves itself into sectional meetings for the discussion of special subjects and aspects of education. The proposed Scottish venture is less ambitious and less comprehensive, as it takes no account of elementary-school teachers. That, however, may come later. Meanwhile, all interested in the unification of competing associations will wish the movement every success.

In a prefatory note to last year's Code, intimation was given that the Department had under consideration the question of the size of classes, and foreshadowing a further restriction in the number of pupils allowed to each teacher.

A new minute has just been issued detailing the proposals of the Department on the subject. Briefly put, these are that fifty be regarded as the normal class unit. For each pupil above that limit there is to be a penalty of 1 per cent., and for each pupil below that limit there is to be a bonus of 1 per cent. No grants will be paid for any class with an average attendance for the year of more than sixty, unless the excess is due to unavoidable circumstances. It must be admitted that the Department has chosen an extremely ingenious method for securing smaller classes, but it is to be feared that Boards will find it cheaper to pay the 1 per cent. penalty than to provide the additional staff to earn the bonus.

#### IRISH.

THE question of the Exchequer grant to be made in place of the "whisky" money must now be regarded as settled for this year. The Government has fixed the amount at £50,000, and although in the debate on the Revenue Bill all the Irish Members of Parliament combined to urge that the amount was inadequate, and, by comparison with the treatment of Great Britain, unfair, Mr. Hobhouse seemed unable to appreciate their arguments. Mr. Birrell, who knows their force and has admitted their importance, was not present, and it is a matter for regret that Mr. Lloyd George, who has been sympathetic, was also absent. The decision of the Treasury leaves intermediate education without any immediate prospect of development or improvement in Ireland.

THE Intermediate Board has published the reports of the examiners on the results of the examinations held last June. Why is it that this pamphlet is not issued before Christmas? It consists of seventy-eight pages. Most of the subjects are dealt with in detail, and the remarks are worthy of careful examination. One naturally turns to the reports of the French and Irish examiners, as their remarks in previous years have raised considerable criticism. The French examiner thinks the average of the answers to be no more than moderate. Too many young students, after their first year of instruction, are sent up for the preparatory grade. On the other hand, the greatest improvement was shown this year in the preparatory grade, that is, in the majority of candidates who had been learning French for two or three years. As to the middle pass (boys and girls) and the senior pass (boys), their answering was simply disgraceful. The Irish examiner still remains very severe. "There is something radically wrong with the teaching of Irish in the schools. In every grade, from preparatory to senior special, one meets with ignorance of the simple idioms and colloquial expressions, ignorance of verbal forms and prepositional compounds, and either misuse of or utter disregard for length-signs and marks of aspiration." "It is perfectly obvious that grammar is neglected and that no practical instruction is given in metrics." The English and other examiners complain of the weakness in punctuation. The mathematical examiners repeat the remarks of previous years on the lack of common sense, the absence of style, and the inaccuracy of work. The pamphlet should be studied by teachers, as it is clear that the examiners have written their reports with great care, and the details which they give make their remarks of considerable value.

THE National University of Ireland has issued a circular stating what certificates of examination will be accepted as exempting from the matriculation examination. Passes in the intermediate senior grade in the subjects recognised for matriculation will be accepted as equivalent in these sub-

jects at the matriculation examination. The certificates of the following Boards will be accepted, provided that the subjects required have been passed: the Preliminary examination of the Scottish Universities Board; the examination for the Scottish leaving certificate (higher or honours); Oxford Responsions; the Cambridge Previous examination, parts i. and ii.; Oxford Senior Locals; Cambridge Senior Locals; the examination for the higher certificate of the Oxford and Cambridge School Examination Board; the matriculation examination of the Queen's University of Belfast, London, Birmingham, Northern Universities Board, and Wales. All students not taking Irish at matriculation must attend a course in Irish language, literature, and history after matriculation.

THE Department announces that the examination for a limited number of scholarships and teacherships-in-training, tenable at the Royal College of Science, Dublin, will be held from Monday, July 3rd, to Thursday, July 6th, and not from Tuesday, June 27th, to Friday, June 30th, as previously arranged, owing to the incidence of the King's Coronation and the Feast of SS. Peter and Paul making the intermediate examinations later this year.

THE Department's Parliamentary vote for the year 1910 included a sum of £48,750 as a grant for science and art instruction, payable to schools which adopt the Department's programme, for experimental science, drawing, manual instruction, and domestic economy, being an increase of £5,150 on the previous year. The vote also includes the following grants in aid: cattle pleuropneumonia account, £10,200; congested districts board, £58,709; provision for certain agricultural purposes, £22,495; provision for purchase of specimens for the National Museum of Science and Art, £2,300; books for the National Library, £1,300; and apparatus for the Royal College of Science, £1,500. The total sum available for technical instruction in non-agricultural districts for 1909-10 was £72,182, apart from a balance of £74,192 brought forward from the previous year, and the expenditure was £91,410, of which £41,184 was paid to the county boroughs. The net expenditure on the agricultural side of the Department's work in 1909-10 was £117,775.

It is interesting to note the interchange of views between the Department and the Dublin Commissioners of the National University, and also the Belfast University Commissioners in regard to a scheme of co-ordination the object of which is to avoid unnecessary duplication of teaching and equipment in the technological subjects dealt with in the Royal College of Science, and it seems probable that satisfactory arrangements for this end will be made in both cases. The new Royal College of Science is almost completed, and the Department hopes will be in full working order by the commencement of the session 1911-12.

#### WELSH.

THE forty-second annual conference of the National Union of Teachers was held this Easter at Aberystwyth. It is very fitting that, with the educational advances made in Wales of late years, the National Union of Teachers should follow up so soon its Llandudno conference with another conference in Wales. It is not unlikely, however, that the fervid self-satisfaction of some Welsh educationists received a chill when the elementary-school teachers spoke of the demand in Wales for low-salaried teachers in the primary schools, and again when the teachers said what they thought of the action of Cardiganshire in discussing for two years the question of

putting the head teachers of the non-provided schools on the same scale as the heads of provided schools. Cardiganshire Education Committee will possibly say that it only delayed taking action, not refused. But Mr. Gladstone once said, "Justice delayed is justice refused"—and this is what the mass of teachers think of the unwillingness to unify the payments to teachers for the same work.

THE Aberystwyth Conference of the National Union of Teachers is distinguished by being the first occasion on which the presidency has been filled by a woman teacher. Miss Cleghorn has thus made the meeting historical, not merely by being the first woman to occupy the chair, but also by the forcible and capable address delivered. Amongst the subjects for discussion were: "The Function of his Majesty's Inspectors in the Elementary-school System" and "School Clinics," both of which are referred to elsewhere in this issue. In the course of the conference work, Madame Barbier, of Aberystwyth, gave a lecture on "The Teaching of Music in French Schools."

THE House of Lords has unanimously dismissed the appeal of the Board of Education against the decision of the Court of Appeal in the Swansea schools case. The question was whether the local education authority had the right to pay smaller salaries to a non-provided school than to a provided school. The managers contended that the non-provided school was not efficiently maintained, and the Board of Education's commissioner himself reported to the same effect. The Board, however, disregarded its own commissioner's view. The managers pleaded that the Board of Education had not considered the question put before it, viz., whether the local education authority had power to discriminate in this way between the two classes of schools. The House of Lords decided in favour of the managers.

In connection with the Swansea school case, a question in the House of Commons brought the answer from Mr. Runciman that the expenses incurred in connection with the inquiry held on July 31st and August 1st, 1908, amounted to £273 19s. 3d., and the total disbursements of the solicitor's department of the Treasury in connection with the case amounted to £2,241 12s. 11d. Mr. Runciman stated that he had taken into consideration the probability of the expenses when he decided to go on with the case.

LORD TREDEGAR, with great generosity, has just given six acres of land adjoining the intermediate schools at Newport (Monmouthshire) to the Newport Education Committee for the use of the schools. The Newport Education Committee has requested the headmaster to take steps to form a cadet corps at the school on lines previously reported upon.

SIR E. VINCENT EVANS, at the distribution of prizes at Dolgelly County School, spoke upon the work of the committee appointed to consider the means for promoting a movement for utilising more effectively the educational output of Wales through the establishment of an Appointments Board charged with the duty of assisting scholars from the county schools and colleges of Wales to obtain suitable situations and to achieve successful careers. Machinery would be provided to advise and assist in finding employment for Welsh boys and girls in the Civil Service, both at home and abroad, as well as in trade and commerce. He regarded this movement as the most encouraging event that had taken place for some years past in the history of educational advancement in Wales.

A DEPUTATION from the Central Welsh Board and Welsh County Councils in reference to the report of the Board of Education on secondary schools in Wales has been received by the Welsh Members of Parliament. The deputation complained of the tone of the whole report, and particularly of the passage: "The Central Welsh Board should now consider to what extent their rigid examination system may be the cause of the wooden and unintelligent type of mind of which their examiners complain." The chairman of the Welsh Members promised that the view of the deputation should be considered.

## A GREAT EDUCATIONAL UNDERTAKING.

*A Cyclopedia of Education.* Edited by Dr. Paul Monroe. Vol. i. xiii+654 pp. (New York: The Macmillan Company.) 21s.

THE appearance of a great and comprehensive "Cyclopedia of Education" in English is a welcome sign of the times. Germany has been twice richly served in this matter, thanks to the labours of Schmidt and Rein; France has long had its Buisson; and now America has found an accomplished editor in the person of Prof. Paul Monroe, to whom we already owe our standard general history of education.

It is inevitable, of course, that his long list of collaborators should be in the main American; nevertheless, it is sprinkled with a few good names from our own country, from France, and from Germany. Amongst departmental editors we have Mr. de Montmorency (educational administration), Prof. Foster Watson (English educational history), and Mr. A. F. Leach (Middle Ages, Reformation). Prof. Münch could hardly have been improved upon for Germany, and France is admirably represented by Dr. Compayré. Amongst individual contributors we also note the names of Prof. Sadler and Prof. Darroch.

The general plan of the great work, which is to be completed in six volumes, seems admirable, and the appearance of the first volume gives us adequate means of testing the efficiency with which it is being worked out in detail. It includes more than a thousand separate articles, and covers the alphabet from Abacus to Chrysostom. Perhaps the best tests of efficiency of a work of the kind are embraced in the three words completeness, balance, accuracy. In respect of completeness, we have tested this volume in various ways, and not found it wanting. It is especially complete and up-to-date in its treatment of existing educational systems, thanks to the organisation of that admirable Bureau of Education in Washington. Even individual schools which stand for ideas in education are allowed a place—Abbotsholme and Bedales, for example. There are, in addition, admirable articles on such topics as apprenticeship and education, adolescence, compulsory school attendance, athletics, blackboards, centralisation, child labour, the study of childhood, art in education; and it is part of the editor's plan to include all the subjects that are, or ever have been, part of the curriculum of schools and universities. All the articles are accompanied by a useful list of references.

In the matter of balance, we should naturally expect to find much in the volume that an English editor would excise. It must and ought to favour especially the country of its origin. In this respect it will be of the greatest service to us on this side of the Atlantic who happen to be interested in American educational institutions. It should be said, too, that the word American includes the whole continent. We find more space given to Chile than

Bulgaria. Canada is well done by, and Brazil and the Argentine Republic also secure interesting and adequate treatment. We might perhaps have spared the short articles on such institutions as Bethel College, Newton, Kans., Bethany College, Lindsborg, Kans., Bethel Female College, Hopkinsville, N.Y., and the like. They might be included in a year-book, but not, one would think, in a work of this kind, though more space is sometimes given to such relatively parochial institutions than to the University of Budapest, for example.

The longest single article in this volume is on athletics, to which seventeen pages are given. Cambridge University has nine pages, Calvin and the Calvinists eleven, botany and botanical gardens twelve, Belgium thirteen, Austria five, whilst to art teaching and art schools no fewer than twenty-two pages are devoted. An editor's task is no light one, and these examples of space distribution will show in a very imperfect way how Dr. Monroe has faced this particular aspect of his problem.

So far as accuracy is concerned, it is impossible for a single reviewer to speak with authority on all that is covered by the volume. The signatures attached to the articles are in most cases a sufficient guarantee of their trustworthiness. The volume, taken as a whole, promises well for the completed work; and one hardly knows which to admire most, the devoted editor or the publishers, both of whom have set their hands to a tremendous task of more than doubtful commercial advantage, although their work cannot but prove an asset of the utmost value to that fraction of the English-speaking world which happens to be interested in education.

The volume is enriched with many interesting photographs and other illustrations.

## PROMETHEUS UNBOUND.

*Shelley, Poems Published in 1820.* Edited by A. M. D. Hughes. 224 pp. (Clarendon Press.) 3s. 6d.

"Audisite haec, Amphiaræ, sub terram abdite?"

THE production of a critical edition of the poems of Shelley's wonderful year calls for a longer notice than a new edition of the "Prelude" or of "Endymion," for, strange though it may seem, editors are afraid of the "Prometheus," and Miss Scudder alone has produced anything noticeable. The present editor, whose sex is hidden under initials, seems doubtful in turn about the sex of Vida D. Scudder, and omits entirely any reference to Francis Thompson; but justice is done to the large editions of Shelley and to the work of Ackerman, Rossetti, and Todhunter.

We are very grateful to Mr. (?) Hughes for this book, for the *apparatus criticus*, the sensible notes, and the long introduction—placed, as it should be, after the text—and for the defence of the fourth act, for which most editors humbly apologise. But we should have been glad if the "Prometheus" alone had been issued, and extra space given to the questions it raises. The poem, as many critics have told us, stands alone, and is, rather than represents, Shelley; moreover, its day has not yet come, though it is a hundred years old, and its author still is an uncrowned king.

But for whom is this book intended? Surely not for schools. Are we to-day prepared to discuss the Aeschylean myth, with all that is behind it, even in the sixth forms? If so, we may expect to see "Political Justice" and the "Age of Reason" prepared with notes, introductions, appendices, and all the paraphernalia of the class-room. We will suppose, then, it is for the private student who, so

far, has known this lyrical drama as either a drama full of lyrics or a set of lyrics in dramatic form.

The stupendous picture of the giant on Caucasus, the majesty and blasphemy of the Curse, the pathetic horror at the crucified Christ, the swirl of the French Revolution pictures, the midnight shadow of Demogorgon, the Isaian outlook for a regenerated earth, the multiple voices of conscious earth rising to the crescendo of the last twenty lines, all these are known, as literature, to the careful reader; and many people could repeat whole pages in which these vivid pictures flame and die and flame again; but this is not the "Prometheus." The chorus of spirits, the voices of the air, the songs of the hours, all unforgettable lyrics, are not "Prometheus"; and apart from its melody, its word pictures, its Utopian dream, there is its meaning. And this meaning, perhaps wilfully confused by Shelley, is just that part of the poem of which editors and commentators are afraid. Yet this is "Prometheus": this is Shelley.

It seems almost unnecessary to refer to Aeschylus; Shelley's "Prometheus" is not his. Shelley's Crucified One (the parallel is intentional with the poet) is the Human Mind, and the very opening lines show this Human Mind punished for its great, its inconceivable, and almost irremediable error—the creation of God. There can be no blinking it: instead of man being God's great mistake, as some moderns will have it, to Shelley God is man's great mistake, in which the conscious earth has shared. We may, if we please, soften this by calling God Jupiter: it does not affect the argument. Man has created the monster to whom he bows, and who showers on him all the malignity of his vengeance. Annotators ask what the motive of Jupiter is; but this question shows how little the poem is understood. Shelley lays it down that, until the God who sends sorrow, pain, disease, and the like on the earth (the God invented by man) is done away with, there can be no progress possible for storm-tossed man. To say that Shelley at the end of the third act leaves the world godless is again to mistake the poet's meaning *in toto*. Love reigns, and to Shelley God is Love, for Love is God.

It comes to this, then, that nine-tenths of human sorrow, pain, and chaos are remediable, being caused by man, and attributed by him to his invented God; that this huge fraction of human troubles is the enemy at which all the efforts of all the benefactors of man are to be directed. There is no liberty possible to man until the coercion of Prometheus, Asia, and Demogorgon have brought about the downfall of man's monument of error; against man this coercion must be preached and preached; and then, and not until then, will come the reign of liberty. To call Shelley the apostle of liberty is, in our opinion, to misread him utterly; he viewed the Beulah land of liberty across deserts of coercion. Man must conquer man before he can be free.

Now this teaching of Shelley, divested of its divine melody, its unworldlike illustration, and its evanescent colours, is precisely the teaching which to-day is timidly putting forth its head around us, so timidly that even now it has to wrap its meaning up in terms that will not hurt too much Jupiter's multitudinous slaves. It has taken a long time for the Prometheus message to be heard—even faintly. The Book of Job arraigned God, and finally bent before Him as a Mystery; the drama of Shelley arraigned God equally and dethroned him, branding man as the author of evil and of God, and seating in the vacant throne of heaven the God whose name is Love. As yet, however, Demogorgon sleeps, and the Titan hangs upon the Precipice.

## THE BASES OF EDUCATIONAL PROCEDURE.

(1) *Educational Psychology*. By Edward L. Thorndike. Second edition, revised and enlarged. 248 pp. (Teachers' College, Columbia.) 1.50 dollars.

(2) *A Text-book of Psychology*. By E. B. Titchener. Part II. vii+358 pp. (New York: The Macmillan Company.) 6s. net.

(3) *Science of Education*. By T. P. Keating. Reissue. 130 pp. (Longmans.) 2s. 6d. net.

(4) *Adolescence*. By J. W. Slaughter. xv+100 pp. (Sonnenschein.) 2s. 6d.

(5) *The Applications of Logic*. By A. Sidgwick. ix+321 pp. (Macmillan.) 5s. net.

PROF. THORNDIKE has won world-wide distinction as a psychologist, and his contributions to the psychological questions which underlie the teachers' practice are always important and valuable. The new and revised edition of his "Educational Psychology" (1) is therefore especially welcome. It is not, however, a book for beginners in psychology. The author assumes that his readers are already familiar with the ordinary text-books of that subject, and that they have some acquaintance with the literature of child study. Nor must students go to his book for psychological facts which bear upon the teaching of specific subjects. The central problem which he deals with is that of the individual differences between children, and he endeavours to show the respective parts played in producing those differences by sex, race, ancestry, &c. The book is an admirable example of the "new method" in educational theory. The author is dealing with facts as a professor of an exact science would deal with them, and his conclusions are at times as startling as they seem to be well founded. "The one thing that educational theorists seem to place as the foremost duty of the schools—the development of powers and capacities—is the one thing they can do least. The one thing which they can do best is to establish those particular connections with ideas which we call knowledge and those particular connections with acts which we call habits."

The second volume of Prof. Titchener's "Text-book of Psychology" (2) is written with the usual "concreteness" of the author's style, and presents a simple and attractive account of the psychology of cognition and feeling, with abundant references for further reading. The author's radical views in the controversy which wages round the traditional threefold aspect of mental behaviour will not win universal approval, but they are stated clearly enough. The critic is left in no doubt as to what exactly Prof. Titchener means. This is not, however, the place for the discussion which the text challenges.

In striking contrast to both these books is another on the "Science of Education" (3), which is apparently written with the training-college student specially in mind. Prof. Corcoran, of the National University of Ireland, gives the book his blessing as alike competent and accurate, equal in these respects to any book of its size in English. This may be intended as a criticism of existing books; if so, it is a serious one.

Masters and mistresses in secondary schools will welcome Dr. Slaughter's little book on "Adolescence" (4), to which Prof. Findlay has written a laudatory introduction. The psychologist has only discovered the adolescent in recent years, and except for Dr. Stanley Hall's encyclopædic volumes on the subject, there was no available book such as a busy teacher might read. This marked gap has now been admirably filled, and we could wish school governors as well as schoolmasters would avail themselves

of this opportunity of reviewing "things as they are" in the schools in the light of what psychology has to say. The author is frankly critical of many of our most admired institutions—the school honour-board, for example, to which "we point with towering pride," but which another generation will regard as a "record of offences demanding condemnation."

Mr. Sidgwick's "Applications of Logic" (5) is not, of course, an educational treatise in the literal sense, yet as an interesting examination of the logic of everyday life and its controversies schoolmasters will find it helpful. The logic of the school debating society and of the argumentative essay are at least as vulnerable as political speeches and partisan leading articles. With characteristic clearness the author lays bare the sources of mischief without troubling his readers with the barren formulæ which still constitute a large part of the logic as taught for examination purposes. The English master who has read the book will be a sounder critic of the work of his best boys.

### OLD AND NEW.

(1) *A Book of Cambridge Verse*. Edited by E. E. Kellett. 439 pp. (Cambridge University Press.) 6s.

(2) *A Treasury of Elizabethan Lyrics*. Edited by Amy Barter. 158 pp. (Harrap.) 1s.

(3) *The Vision of Dante*. By H. F. Cary. With Flaxman's illustrations. 578 pp. (Frowde.) 2s.

(4) *Ballads of the Brave*. Selected by F. Langbridge. Fourth edition. 446 pp. (Methuen.) 3s. 6d.

(5) *An Anthology of Modern English Prose*. By A. Barnett and L. Dale. 451 pp. (Longmans.) 4s. 6d.

(6) *Stories from Old Italian Romance*. Selected by S. Cunningham. 145 pp. (Methuen.) 1s. 6d.

THERE is abundance to choose from here. Beowulf and Cambridge verse, Browning and Dante; how the dead and living jostle one another on the table. Mr. Kellett (1) has acquitted himself well in his collection of solid and fugitive verse; it has been done for Oxford more than once, we think; but here is Cambridge celebrated from Chaucer's day to Dr. Furnivall's. The book, though full of light verse, and not excluding the ladies of Girtton and Newnham, is really learned; probably it will be quoted in all histories of Cambridge following this year. Admirable portraits adorn the book: but we miss two things. No *carmina burana* are admitted (possibly they are not known in Cambridge); no poems of the editor's are inserted. Yet surely Mr. Kellett has written verse. A bibliography of university verse is not yet on the bookshelf: it would be a tiny but a priceless volume, and might include Paris, Montpellier, Oxford, Cambridge, Prag, and Aberdeen. Would Canon Rashdall or Father Denifle or Prof. Saintsbury think such a book beneath his dignity to compile? Still among lyrics, we turn to Miss Barter's "Treasury of Elizabethan Lyrics" (2). It is perhaps ungrateful to complain of anything in such a shillingsworth: but the editor should not write MS. against poems already printed; and why cannot we have with the excellent printing the spellings as the lyrists wrote it? All the Shakespeare songs might be omitted: the space is needed for work less well known. Where are "Cold's the wind and wet's the rain," and many another? An old friend greets us in Cary's "Dante" (3), cheap and well printed. Cary must last until Dante is finally translated; nearly all other attempts fall short of becoming the classic which, so far, this translation is. For this surely the good old notes are to a great extent answerable.

The reprint of Canon Langbridge's "Ballads of the Brave" (4) is interesting: the poems are rearranged, and an excellent preface, an apologia, is added, wherein anthologists are brought to book; the "ethics of anthologists" would be a good title for an essay of Elia. At the same time, we take leave to cavil at the title of the book. If, too, the "ballads" are from earliest days, why is Greece limited to two pieces and Rome disposed of in one? And why, Canon Langbridge, have you kept the Bible out of your pages: "is it not written in the book of Jasher"? But these are trifles, perhaps; and all other old friends and some new faces are here. Football, motoring, golf, cricket, and Rudyard Kipling are found side by side with "Casabianca" and "Prospice." It is an admirable collection: may we ask for an index of first lines? and would the publishers think of getting a scholar to edit "Songs and Stories of the Brave" from non-British sources? There is a wonderful harvest ready to be swathed. Simonides and Pindar, Tyrtaeus, Virgil, Beowulf, and far India are practically unknown.

Mrs. Barnett and Mrs. Dale (5) supply a prose anthology. It is not quite clear for whom it is intended: can it lead a sixth form to literature? We trow not. The selection is, of course, admirable; it is a printed commonplace book, and will be welcomed by many who have read the books from which the extracts come. Yet it is too large to be an *ediscenda*: that book has before now been done, and done well, by one of the editors. There is a curious omission in the Sphynx extract; Kinglake would have fastened on it. A collection of old Italian stories (6) was needed. We should have liked a much longer preface on the fascinating subjects of Sacchetti, Boccaccio, their originals, and their story-tellers' ways. We quite understand this is a reading book for schools; but it is not a story-telling book, and the difference is at once seen if it be compared with Miss Steegmann's "Tales from Sacchetti"; however, the latter is a translation, and Miss Cunningham's is a retelling. No doubt the editor will return to this mine of stories, and then perhaps will republish, folklore fashion, her already excellent work.

### RECENT SCHOOL BOOKS AND APPARATUS.

#### Classics.

*Cornelii Taciti Historiarum Libri recognovit brevique annotatione critica instruxit C. D. Fisher*. Not paged. (Scriptorum Classicorum Bibliotheca Oxoniensis.) Paper. 3s. 6d.; cloth, 4s.—We hail with delight a new volume of the Oxford series, which come as a boon and a blessing to men. Some of the earlier volumes were not very good as texts; but the later volumes (except perhaps "Bucolici Graeci") are generally admirable. Mr. Fisher's is one such. He has brought us back another step closer to the Medicean MS., for which we are grateful; and he has recorded a large number of conjectures in the notes for those who are not satisfied, some hitherto unpublished. When shall we have an Oxford Livy and Sophocles? and, if we may dare to hint it, a new Thucydides and Aeschylus?

*Selections from Homer*. Edited by W. Rennie. With vocabulary. 140 pp. (Arnold.) 2s. 6d.—Mr. Rennie, known for a scholarly edition of Aristophanic plays, is worthy of better things than this book. Not that it is badly done: grant the scheme, and the book is good enough, with its notes and so forth. But the "Iliad" and "Odyssey" in scraps, and both in one volume! If this book "scarcely needs justification under the present conditions of classical study,"



there must be something rotten in the state of Denmark. We should infinitely prefer to read one book through—which would certainly make everybody want more—than scraps with no beginning and ending.

*Selections from Ovid's Heroides.* Edited by L. W. P. Lewis and C. H. Broadbent. 128 pp. (Arnold.) 2s.—This contains seven of the heroic epistles complete, with notes, vocabulary, and introduction. The English analysis is even fuller than that of the "Metamorphoses"; and, what with this and the notes, there is hardly anything left for the bored pupil to do; bored, we say, because the less help you give, the more he enjoys his work. We note that Mr. Evans's airy imaginations have here become fact: "The labyrinth itself has been discovered, and it is now known that it was the actual palace" of Minos. We prophesy that it will be a generation before this assumption takes its proper place amongst other assumptions. We cannot commend books of this sort; but if anyone wants them, they will find here what they want.

*An Easy Selection from Cicero's Correspondence.* By J. D. Duff. viii+128 pp. (Cambridge University Press.) 1s. 6d.—The introduction to this book, giving sketches of Cicero's friends, is really good; so are the letters, admirable every one—but why are the headings all left out? The notes are satisfactory. There is a vocabulary for those who want it. Print and margins are good. The new Pitt Press Series is much more sensible than the old; but we might perhaps give them a wrinkle or two still. When they are prepared we will do so. We will here only suggest that there is no need for notes like "abl. of cause," "acc. of duration," and O ye gods! a list of all "the dates occurring in these letters, with their English equivalents"! Is this the way to teach? or is it shameless cram?

*Plato, Crito and Euthyphro.* Edited by A. F. Watt and T. R. Mills. 72+56 pp. (Clive.) 2s. 6d.—This is indeed a novelty. Introduction, text, and notes we have seen before in various forms; but not the vocabulary. Here, in place of a bald alphabetic list, we have, for each section in order, a number of words (how chosen it is not stated) with meanings, parsing, principal parts, and so forth. This may save trouble; but it has its dangers. For instance, when the anxious learner is stumped by *πάνυ μὲν οὖν* he will turn to the vocabulary, and there he will find "*πάνυ*, adv., very"; *ἡδιστα* he will learn means "pleasantly," but that will not help him much with *ὡς ἡδιστα*; for *παρεστῶσι* he has all the parts of *παρίστωμι* except this peculiar participle, which he will vainly try to place, nor will he trace *τεθνῶναι* to *τίθνηκα*. The vocabulary is interleaved, no doubt to put such things in. We do not understand the plan of this book.

*Aristophanes, The Peace.* Edited by C. E. Graves. xvi+144 pp. (Cambridge University Press.) 3s. 6d.—Mr. Graves modestly says that there is not much in this book that is original; and it is true; but he has got from Blaydes, Paley, Sharpley, Rogers, and others all that is wanted for the undergraduate to get up his play. This is all put very briefly and neatly. It is just the book that the undergraduate will want. We have found in it what we wanted. But those who go to Rogers and Sharpley will get more, and we hope that this book will send them to Rogers and Sharpley, to see what literary men can make of a play of Aristophanes.

*Livy: the Seven Kings of Rome.* By G. H. Nall. x+146 pp. (Macmillan's Elementary Classics.) 1s. 6d.—In the earlier chapters, the sentences are put on separate lines,

to help the youthful intellect to grasp them. Later, the style is less simple. A few notes are added, and a number of English sentences based on the text for translation. Last comes the inevitable vocabulary, and English-Latin index. These stories never pall, even when they are obviously cooked up for weak stomachs; but how much better they are when otherwise treated! We have on other occasions pointed out that the small page and mean margin of this series is bad for the eyes.

### History.

*A Short History of Modern England (1714-1910).* By E. Bowyer. ix+230 pp. (Methuen.) 2s. 6d.—Mr. Bowyer's strong point is economic history, and he tells us in his preface he has been "forced," in order to make the story intelligible to a fifth-form boy, "to treat both it and the international history with considerably more detail than is customary" in school text-books. The result is a book which should be added to the books used for this period, if not as a substitute for them. The author makes no claim to originality; but he has studied some of the best secondary authorities, and though, owing to lack of space, some of the chapters are short, and seem to pass rapidly over long periods, we can heartily recommend it as fulfilling its objects. There are seven maps, two genealogical tables, some carefully condensed biographical notes, a summary of a recent budget, and an index. If only Mr. Bowyer had avoided talking of an Emperor of Austria in the eighteenth century, and calling Maria Theresa Empress before 1745, we should have no fault to find. Especially good are the extracts from contemporary sources which he gives at the end of many of his chapters.

*A Short History of Europe (476-1453).* By C. S. Terry. xv+288 pp. (Routledge.) 3s. 6d.—Prof. Terry's object is "to bring European history into the closest connection with that of Britain, and to view it in a British perspective." We are glad to say that, so far as we can judge, he has failed in that object, but has, instead, written a good history of what we may call "Roman" Europe for the thousand years that are commonly called the "Middle Ages." Sometimes he packs what others may think unimportant details into a small compass; sometimes he seems to glide too easily over what we may regard as more important matters. In spite of Bryce and Freeman, whose works he has evidently studied, Prof. Terry talks of a Western Empire and an Eastern Empire, and thinks the former "fell" in 476. "France" also looms too large in his pages, and he even goes so far as to say (p. 183) that "southern France" "pronounced the word *oui* with the sound *oc*." In our opinion, too, he antedates the feeling of "nationality" by several centuries. But, with these exceptions, the reader will find here a good sketch of European history practically from the beginning of the Christian era (for the first thirty-eight pages are given to a description of the Roman Empire and the "barbarians") to the taking of Constantinople by the Turks. There are eighteen genealogical tables and a good index.

*Local History and Antiquities.* By J. E. Morris and H. Jordan. xvi+300 pp. (Routledge.) 4s. 6d. net.—The authors of this book have evidently put into it an enormous amount of knowledge about all parts of Great Britain, and the result of their work is interesting and useful. In their first two chapters, which occupy a quarter of the whole, they give the results of local antiquarian research into the pre-English period of our history; after that period it is not so easy always to follow the line of

thought. Their intention is apparently to tell the story in chronological order, yet basing it on topography, architecture, &c. The consequence is that while the book abounds in information on military, economic, domestic, and ecclesiastical life, and in numerous sidelights on the ordinary history, the reader is apt to be sometimes puzzled to find the connection of thought. Thus on p. 247 we read: "The angles and the pinnacles which decorate flying buttresses are often the most attractive part of a church seen from the outside. Instances are very numerous. Perhaps the champion cathedral of Europe is that of Chartres. What is now the parish church of Boxgrove, near Chichester, was once the chancel of a priory, quite a small, and one may even say an insignificant, priory with not more than a score of inmates, but the work is very beautiful and spacious." What is the connection between these sentences? But we must not find fault with a book which contains such good matter and will interest all who live near or have visited some of the "antiquities" of their island. There are sixty-four good photographs and an index.

**Famous Sea Fights.** By J. R. Hale. xi+343 pp. (Methuen.) 6s. net.—Mr. Hale does not profess to tell the story of all the sea fights "from Salamis to Tsushima." He chooses four or five from each of the three periods into which he divides world history from his point of view, the periods, viz., "of oar and close fighting," "of sail and gun," of "steam, armour, and rifled artillery." There are thirteen pictorial illustrations and seventeen plans, of the latter of which six illustrate the fight of Lepanto and three that of Tsushima. The stories are well told "in non-technical and popular language," and there is much besides the actual battles. In addition to these, the evolution of the warship is described, and something of the history which led to the wars of which these fights were episodes. We cannot conceive a book better adapted to effect the author's purpose of enforcing the lessons of Lord Bacon's essay on "The Greatness of Kingdoms" and of keeping alive an intelligent popular interest in sea power.

### Mathematics.

**Solid Geometry.** By C. Godfrey and A. W. Siddons. vii+109 pp. (Cambridge University Press.) 1s. 6d.—In the preface the authors suggest some interesting questions regarding the position and scope of a course of solid geometry in school work, without offering any very conclusive answers. They say that "it is generally found in actual practice that the choice lies between informal solid geometry and no solid geometry at all: there is no time for a course on the lines of Euc. XI." So, following the lead of the Board of Education Circular (March, 1909), they offer in this book an informal course. The truth seems to be that schoolmasters are cultivating, or are being encouraged to cultivate, superficiality and breadth rather than thoroughness and depth in the work of their pupils. The book is divided into three parts. The first contains an informal discussion of the main properties of lines and planes; the second, properties of the principal solid figures, including mensuration; and the last, some account of co-ordinates in three dimensions, plan and elevation, perspective. In the section dealing with mensuration, proofs of the expressions for the volumes of a pyramid and sphere introducing the notation of the integral calculus are given, and there are others involving the ideas of the calculus. We are therefore surprised to find that there is no complete proof of the expression for the volume of a right prism;

a footnote stating that a strict proof involves the methods of the infinitesimal calculus. Surely this is not the case. We find no mention of the method of transforming oblique prisms into right prisms by cutting, a method analogous to that employed in Euc. I. 35, and certainly more convincing than the card method. There is a good collection of examples, and amongst them the teacher will find a large number affording exercises in the Euclidian methods of proof.

**A New Trigonometry for Schools and Colleges.** By J. B. Lock and J. M. Child. xii+488 pp. (Macmillan.) 6s.—Those who have used Mr. Lock's "Trigonometry," and are acquainted with the features which made it such an attractive and useful book, will not be disappointed with this "New Trigonometry." It would, however, be a mistake to suppose that we have here merely a revised and enlarged edition of the older work. It is in every respect a new book, in which the subject is treated both on the theoretical and on the practical side in a manner which shows the authors to be keenly alive to the requirements of the present day. By the time a pupil has reached the end of the sixth chapter, he ought to be able to solve all ordinary numerical problems. Five-figure tables of logarithms, antilogarithms, and the trigonometrical functions are inserted in these chapters. We think, for ease of reference, it might have been better to put them at the end of the book. The model solutions could not be improved on, and we are glad to notice that attention is directed to the possible errors which occur in using tables. From chapter vii. onwards the more purely theoretical aspects of the subject are considered. Attention may be directed to the careful treatment of the infinite series which are met with. At the end are to be found a couple of chapters dealing with the geometry of the triangle and quadrilateral and their related circles. The last chapter is entitled "Practical Work with Tables," and contains a mass of useful information relating to measuring and surveying instruments, the defects of tables and how to overcome them, and the effects of instrumental and personal errors. The examples are numerous and carefully graded, and amongst the answers are to be found hints for the solution of the more difficult problems. The book is in every respect one which requires merely to be known in order that its excellences may be recognised.

**A Text-book of Integral Calculus.** By Ganesh Prasad. x+241 pp. (Longmans.) 5s. net.—This is a companion to the volume on the "Differential Calculus" already noticed in these pages. It is to be regarded merely as an introduction to the subject, and is throughout of an elementary character, although the author has, within the limits which he has imposed on himself, endeavoured to lay the foundations in as rigorous a manner as possible. While in general the method of treating the various problems is all that could be desired, in one or two respects it is capable of improvement. We think that the author would have done well to have consulted Greenhill's "Chapter on the Integral Calculus" when discussing the integration of algebraic irrational functions; and more might have been done with successive reduction. A chapter is devoted to elementary applications to mechanics and physics, including the solution of some of the more frequently occurring ordinary differential equations. In learning the integral calculus, the student on the whole derives more benefit from the study of worked examples than from expositions of general theory, and in this respect the book is entirely praiseworthy. The type and arrangement are excellent.

*A Rural Arithmetic, including Household Accounts.* By R. Deakin and P. J. Humphreys. viii+180 pp. (Mills and Boon.) 1s.—This book is designed for the use of students in evening continuation schools in rural districts. Part i. contains exercises on the ordinary rules of arithmetic, and part ii. deals with the management of household accounts. The special features of the book are to be found in part iii. This contains exercises of a thoroughly practical character, based on classified and up-to-date information on nearly all matters in connection with which a farmer might require to do a little calculation. Amongst the topics treated are fencing, planting and sowing, carpeting, land measurement, capacity of churns, ricks, value of foodstuffs, manures, insurance, butter, cheese, and honey. It seems to us to be an admirable little manual, and should be of no small utility in promoting economy in all that pertains to farming.

*A First Book of Geometry.* By J. V. H. Coates. xii+142 pp. (Macmillan.) 1s. 6d.—This is a useful little introduction to the geometry of triangles and the circle. In accordance with modern practice, it opens with a course of practical work leading up to the theory in the second part of the book. The value of training in deductive method has not been lost sight of in arranging the proofs of the theorems. There is a sufficiency of exercises of all kinds, including some to be taken orally.

#### Science and Technology.

*Applied Mechanics.* By J. Graham. viii+304 pp. (Arnold.) 5s. net.—In this book the author gives the elements of the essential parts of the subject without too much detail. This has been carried out by including in outline the greater part of the lectures given by the author to students of applied mechanics at the Finsbury Technical College. In scope, the book fully covers a second year's course in the subject and includes matter on hydraulics. The author also gives five chapters on the theory of the steam engine; this is somewhat unusual in a book of the kind, and some of the space thus occupied might have been better given to the principal subject dealt with in the book. The fundamentals are clearly and for the most part soundly treated, and the author is to be commended for having kept in view the fact that his engineering students are also studying physics, and for having avoided the mistake of ignoring the conceptions of units which his physical and mathematical teachers give him. It is, however, difficult to avoid ambiguity entirely; and this may be noticed in the first and second paragraphs of chapter ii., which read that  $g$  denotes the acceleration under the action of gravity at London, i.e., 32.2 feet per second per second. The student who is acquainted with algebra only so far as quadratic equations will be able to read most of the book; the calculus is introduced occasionally. Besides the ordinary principles of applied mechanics, the author gives chapters on balancing and on graphical statics. On the whole, the book is among the best of those issued within the past few years and intended for second-year students, and will be welcomed by many teachers who are able to supplement its scope with a good laboratory course.

*A Text-book of Physics for Colleges and Technical Schools.* By W. S. Franklin and B. Macnutt. (i) Light and Sound. 344 pp. 5s. net. (ii) Mechanics and Heat. 409 pp. 7s. 6d. net. (New York: The Macmillan Company.)—The foundation of the style adopted by the authors is their conviction that it is vitally important in the teaching of elementary physics to emphasise and rationalise those phases of the subject which are exemplified in daily

life and business. Most teachers will agree with this statement; but they may not allow so readily the authors' claim that, in issuing a series of texts, "they are doing as much for the ultimate development of science in America as any of their research specialists in physics."

(i) Wave-theory is the subject of an early chapter; wave-pulses in a canal are discussed fully, with the aid of many illustrations, followed by a consideration of stationary waves and Huygens's principle. This principle is adopted in the subsequent chapters on reflection, refraction, and lenses. A chapter on lens imperfections and their compensation is one of the best, and perhaps the most useful, in the book. Dispersion, interference, photometry, colour, and polarisation are treated quite satisfactorily. The section on sound is limited to sixty pages. Two appendices, on cardinal points and planes of lens systems, and on radiation, are added.

(ii) This volume is quite excellent in several respects, especially the section dealing with mechanics. The chapters on rotatory motion and on elasticity are particularly worthy of attention, and the section terminates with two good chapters on hydrostatics and hydraulics. The section on heat suffers from being concentrated into 130 pages, but what is given is good. A series of well-chosen examples, with answers, follow each chapter. The reader will require a knowledge of the calculus.

*A School Course of Heat.* By R. H. Scarlett. 300 pp. (Longmans.) 3s. 6d.—This course, of forty-two lessons, is intended for students who have been through a simple course of general physics. In order that the volume may be self-contained, that portion of the subject included in a first-year course is inserted as a short "preliminary survey." The treatment of the subject is satisfactory from the point of view of both teacher and student, though in some parts it seems to be considerably more advanced than that usually required in a second-year course of a secondary school. A large number of experiments are described and illustrated fully, and many numerical exercises are provided. In the calculation of the apparent coefficient of expansion of a liquid from observations with a weight-thermometer or a "specific-gravity" bottle, should not the weight of liquid expressed in the denominator be that which is contained in the vessel when heated to the higher temperature? In this respect there appear to be numerical errors on pp. 60 and 65.

*Outlines of Experimental Chemistry.* By E. B. Ludlam and H. Preston. iv+95 pp. (Arnold.) 2s.—We have here a compromise between old and modern methods of teaching the science. The authors point out, quite rightly, that in large schools the necessity for organisation increases greatly the difficulty of teaching on the most advanced heuristic lines. They do not attempt to adhere to what they consider an impracticable ideal. Nevertheless, their directions for practical work are so worded as to leave as much as possible to individual initiative and to encourage original thinking on the part of the scholar. They have been successful, moreover, in producing what may be regarded as a complete school course, containing all the practical chemistry which should rightly be attempted by any schoolboy. There are sections on gravimetric and volumetric analysis, as well as experimental illustrations of the atomic theory and determinations of some of the constants of physical chemistry. In the directions for gravimetric analysis it is surprising that the authors fail to recommend the collection of precipitates (e.g., of silver chloride) on the Gooch crucible, now that its introduction in porcelain has put that valuable piece of apparatus within the reach of every laboratory.

## CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

**Edinburgh Vacation Courses.**

We would again respectfully invite the attention of your readers to the Edinburgh vacation courses in modern languages, to be held for the seventh time in August next within the University of Edinburgh. They are the only courses of the kind held in Scotland or the north of England for the benefit of British students of French and for that of foreign students of English, and they have always been warmly appreciated both on educational and international grounds. Students and teachers of French who desire to improve their knowledge of the language on the easiest, pleasantest, and least costly terms will have the opportunity of being taught language, literature, composition, conversation, phonetics, &c., during three or more hours daily by a staff of six distinguished Parisian professors and lecturers.

Our council of a hundred members, including the principals of the four Scottish universities, the secretary of the Scottish Education Department, and other eminent educational authorities, are earnestly desirous of promoting both national education and international friendship, in both of which aims they have hitherto had a most gratifying measure of success. But as we possess neither funds nor endowments for the payment of expenses, we can only hope for renewed success, provided the attendance continues to be adequate. We need hardly add that no profit or emolument accrues to anyone beyond the very moderate fees paid to our admirable and self-sacrificing staff.

REAY (Patron),

ALEXANDER DARROCH, Prof. of Education  
(Vice-President),

J. KIRKPATRICK, Emer. Hist. Prof.  
(Hon. Secretary).

**Heuristic Method in Geography.**

It is curious that Prof. Armstrong in his paper on Science in Rural Schools relegates geography to the limbo of subjects worthy of only a secondary place in the curriculum as not suitable for the application of the heuristic method.<sup>1</sup> First-hand observation is certainly impossible in much of the work, but the subject yields a rich harvest of problems suited to every capacity, and as a means of inculcating the power of logical deduction it is unsurpassed.

I do not propose to deal with "practical" geography, but to show how original study of distant lands may afford scope for heuristic methods. The children are furnished with simple geological maps of the region to be studied. For the younger children nothing more is attempted than the distinction between hard and soft formations. The origin of mountain ranges and the results of denudation have been taught by practical work and observation earlier in the course. They are asked to sketch in lightly the probable mountain systems. Then the real systems are drawn on the board by the teacher, and the children correct their drawings, and their mistakes are pointed out and explained. The river system is treated in the same way, and then temperature, rainfall, and winds. Mineral, vegetable, and animal productions are next treated, and then the geography of man is attacked. The children deduce the probable centres of human life, occupations,

and trade routes, the real facts of each step being discovered and entered on the maps before proceeding to the next. Then an attempt is made to get a clear mental picture of the scenery and appearance of the region. For this, particular places are allotted to five or six members of the class, who prepare as vivid a word-picture as they can. The teacher suggests suitable sources of information, and the pupils illustrate their papers with photographs, picture postcards, &c. After a paper has been read, the audience and the teacher put questions to the speaker to gain further information or to bring out points it may be desirable to emphasise. Similarly, at the next lesson descriptions of the life, manners, and customs of the people are given by other pupils. Then the towns are studied in detail, being taken in order along a river valley or a trade route. A town is allotted to one pupil, who must give an account of its history and its industries, and, if possible, supply answers to the questions: Why is there a town in that locality? Why does it follow its particular industries?

The honour of giving a paper is eagerly coveted by the pupils, who enjoy these seminar lessons more than any other in the course. Not only does such a course develop their reasoning powers, but it affords valuable practice in using a library. They are taught where and how to look for information, which is much more useful than mere acquisition of facts. EDITH DOUGLAS MORRISON.

St. Bude's School, Edinburgh.

ALTHOUGH I am aware that I have said many dreadful things in my time, I do not think I have ever denied the possibility of using "the heuristic method" in teaching geography—my belief being that the method may be applied, if desirable, to every subject and to all subjects. A scheme such as Miss Morrison pictures may be followed doubtless with a considerable measure of success by an enthusiastic and specially gifted teacher but it scarcely embodies my idea of heuristic teaching. Unfortunately, too, I doubt the ability of average children to make much of a simple geological map, as I find that young fellows seventeen to twenty years old have considerable difficulty in culling information from the beautifully coloured map of the British Isles, on a scale of 25 miles to the inch, published by our Geological Survey. My idea of the heuristic method applied to geography is that, having seated himself on his cycle, with a few shillings in his pocket, a lad should ride about exploring his country; or that, having secured passage as stowaway or on a tramp-steamer or in some cheap way, he should venture abroad and see for himself what the world is like and thus learn that he is not the only person of importance in it.

The question is, What is meant by geography? Teachers of the subject seem nowadays to think that everybody else's subject forms part of geography. A committee of the Headmasters' Conference only recently advised us that, in so far as it was desirable to include "physical science" in the curriculum of a preparatory school, the teaching should form part of geography!

I am afraid I am fast becoming a heretic even in respect of my own early teaching: fortunately I am not yet blind and feeling more sympathy with the young folk than perhaps I did in earlier days, when looking at what is going on in schools, of late years, I have been led more and more to consider the feelings of the taught rather than those of the teacher—to ponder over the digestibility and nutritive value of the educational food we supply. I cannot avoid the feeling that most of it has about the value as mental pabulum that sawdust has as human food—it may give the sensation of fulness but it

<sup>1</sup> "Teaching of Scientific Method" (Macmillan), p. 191.

cannot be assimilated. Does it in the least matter to most of us how mountain ranges originate or why there is a town in a particular locality in which particular industries prevail? Savage man has little if any interest in Nature and probably it is not natural for us to take any interest in it—those few who do are sports from their species. The human being is mainly interested in himself. What we do need is to know what the world outside us is like, how the people in it live and what opportunities it offers to us—and it is likely to be of vast importance to us in the future that we should know how the world is parcelled out among the various races and how competition is likely to arise among us all and affect our relationship. It seems to me that teachers of geography would do far better to study a book like Putnam Weale's "Conflict of Colour" than to bother their heads about the origin of mountain ranges; the consideration of problems of food supply is of far greater importance than the study of temperature, rainfall and wind—we are forced to put up with our climate, to take the rain and the wind as they come; we must gain our food by our own efforts.

I should teach geography by purely didactic methods—by much showing of lantern-slides and photographs and by the constant reading and discussion of informing books; I would abolish set lessons in the subject and burn all the text-books. In these days it is possible to borrow all sorts of good books from the free libraries from which passages can be read in class. Thus Gadow's "Mexico," together with Bates's classic book on the Amazons in the Everyman Series, will be found to furnish the most perfect word-pictures possible of tropical forest scenery. These and many other such books cannot be read through by young people but many interesting passages may be culled from them by a capable teacher and read to a class. It must not be forgotten, however, that geography proper is a subject for grown-ups: children, as a rule, are not particularly interested in travel and appear to profit little from it. We elders are far too prone to overlook the fact that things we take interest in and regard as important often have little if any meaning in children's eyes; hence it is that there is so much misdirected effort in our school practice.

I trust I shall not be misunderstood. I thoroughly appreciate the spirit manifest in Miss Morrison's advocacy of heuristic teaching: I only doubt the advisability of applying the method in all the ways and perhaps in quite the way she suggests, as I think geography should serve practical ends and be learnt in practical ways.

At the moment I happen to be studying a mountain range in a practical way—by walking about it. The hills are sufficiently beautiful without considering their origin. Here and there on the horizon we see smoke issuing from iron furnaces—my young companions notice the smoke and know where it comes from; I do not think they are troubling themselves to draw lessons from it and I have not sought to disturb their peace of mind: I cannot help thinking that their enjoyment of the situation is at least as great and as healthy as mine, although I can picture to myself all sorts of things which probably do not enter into their thoughts. I think my enjoyment is disturbed by the habit into which I now have fallen of analysing such situations—but then I am in Ruskin land, where it is only right that the æsthetic side should prevail: is not this, however, the one that we most need to cultivate at the present day in our country as the only possible relief to the monotony of toil, if not as a guide to conduct?

HENRY E. ARMSTRONG.

Borrowdale, Cumberland.

### Science and Aviation.

It is undoubtedly gratifying to schoolmasters like myself, who are interested in aeronautics, to find an article on "Science and Aviation" by Prof. Gregory in your April issue. On the other hand, however, one cannot but regret that the author is somewhat inclined to undervalue the services of the practical men, and at the same time to over-estimate the work done by men of science.

I should be defeating my object in addressing this letter to you if I attempted for one moment to depreciate the value of the work done by Prof. Langley in the cause of aeronautical science, but I cannot help feeling that Prof. Gregory has overstated the case with regard to him when he says that "it was Langley, and no one else, who was the father of modern aeroplaning." He has entirely neglected the work of Sir George Cayley, who may be regarded as the true father of modern aviation. This pioneer, who lived in the beginning of the nineteenth century, not only invented the prototype of the modern explosion motor by designing an engine which utilised the explosive force of gunpowder, but actually designed an aeroplane which lifted itself from the earth. The story goes that he induced his coachman to enter this machine, but that when it lifted, the coachman in terror leaped from the machine and broke his leg. The Aeronautical Society have already published some account of Cayley's work in the "Aeronautical Classics" series, but I believe I am correct in stating that his papers are being collected and arranged preparatory to publication.

Again, I would point out that, though Prof. Gregory dismisses them so briefly, the actual experiences *in the air* of Lilienthal, Pilcher, Octave Chanute, and the Wrights were of vastly greater use to the advancement of aeronautics than the experiments with models which Langley performed. The gliding experiments of these experimenters gave data which needed very little application to determine the power necessary for dynamic flight, while the monoplanes designed by Henson and Stringfellow were but little different from the type of to-day. (Stringfellow's engine, used for his models, was shown at the Aero Show only a week or so ago.) Thus not only may it be stated that these so-called practical men were in reality theoretical investigators (and especially is this true with regard to Otto Lilienthal and the Wright Brothers), but that they put their conclusions to the only real practical test by venturing into the air on gliders—a vastly more important thing than the use of power-driven models.

I fear that Prof. Gregory will have to wait a long time before he finds that large prizes are given for scientific investigation. Has it been his experience that the world is ever ready to acknowledge the quiet investigations of the scientific man rather than the more spectacular feats of the demonstrator? We must take it for granted that scientific investigation in aeronautics must look for no reward, and that is surely the strongest reason why it should be pursued.

Finally, may I suggest that there are many men who are keenly interested in aeronautics among science men in public schools and elsewhere who would be only too willing to carry on investigations if they could be guided by an expert hand? This guiding influence ought to be provided by the Aeronautical Society of Great Britain (the oldest aeronautical society in the world), but it cannot be so unless scientific men and mathematicians like Prof. Bryan make it their business to direct the scientific investigations which the society ought to pursue. The society, as stated in a leading article in a recent issue of *Flight*, is practically living on the charity of Mr. Patrick

Alexander; this ought not to be, and need not be, if scientific men will make the society especially their own, and by its means guide the practical man to a real solution of the problem of automatic stability and to perfection of design. In this way, too, the schools themselves may be able to diffuse sane and sound ideas with regard to aeronautics by instructing boys in school aero clubs. At Epsom College, where I teach, we have already done a good deal in this direction, and the enthusiasm and real knowledge shown by some of the boys have been astonishing.

I fear I have trespassed too much on your valuable space, and I can only plead as justification my intense interest in the subject, and my ardent desire to see the wall which seems to be rising between the scientific man and the practical aeronaut broken down before it is too late.

CHRISTOPHER W. C. WHEATLEY.

THE object of my series of articles, which is brought to a close in the present issue, is to show that practical progress is frequently the fruit of faithful scientific work. The "practical man" is not likely to be deprived of any of his glory by what I have written; yet it is good occasionally to remind him of his debt to investigators who do not work in the limelight of public opinion, and whose results bring no rewards in a worldly sense. I do not yield to Mr. Wheatley in my admiration of the achievements of aviation engineers and airmen; but I do believe that if a small fraction of the money prizes and other gains secured by them had been offered for scientific researches connected with aviation, far more would be known of the basic principles of the design of aeroplanes than exists at present. The prizes offered for aerial contests this season amount to more than £200,000, yet, so far as I know, not a single prize exists for a noteworthy contribution to the theory of aeroplane design and motion.

Prof. Bryan has stated that he could have solved the problem of stability long ago if he had had the time to devote to the subject; but, like most other scientific men, he has to work for his living by teaching and examining, and any investigations he undertakes have to be carried on in his spare hours. The practical engineers are certainly making advances by their trial-and-error methods, but they should not be surprised at the small output of scientific data to help them while there is no adequate inducement to undertake the experimental and mathematical work required for the design of aeroplanes on scientific lines.

In spite of Mr. Wheatley's remarks, I cannot forsake my proposition that Prof. Langley was the father of modern aviation. It would be easy to go back much farther than Sir George Cayley for references to the construction of successful flying machines. For instance, in the time of Xenophon, a philosopher, Archytas, is said to have invented a pigeon that could fly, partly by the use of mechanism; while Besnier constructed wings about the year 1078, and both he and his pupils succeeded in raising themselves from one height to another, Besnier thus reaching the top of a house. Coming to our own days, Lillenthal's experiments in gliding are of undoubted value; but his own view was that flight would be accomplished by imitating the action of birds, and he met his death when trying a machine with beating wings, the latter being moved by a carbonic acid motor. In his book, of which a translation, "Bird-flight as the Basis of Aviation," has just been published, he states quite definitely: "We are, therefore, forced to the conclusion that the only possibility of attaining efficient human flight lies in the exact imitation of bird-flight with regard to the aerodynamic con-

ditions, because this is probably the sole method which permits of free, rapid flight, with a minimum of effort."

It is, of course, possible that Lillenthal will in the end prove to be correct; but in the face of his conclusion I cannot agree that the aeroplanes now in use are directly descended from the system of gliders or wings devised by him. No doubt his experiments, followed by those of Pileher and Chanute, provided results of prime value in the development of aviation; but not until the Brothers Wright, basing their work on Langley's experiments, forced aeroplanes to move through the air by means of motor power was mechanical flight as we now know it accomplished.

Langley's model aeroplane was different from any flying machine ever before launched into the air. It was adjusted so as to balance itself in the air while it was driven forward by a motor; and when in May, 1896, this model flying machine remained in the air for one and a half minutes, travelled about half a mile, and settled down softly and gently on the surface of the Potomac River, it did something which had never been done before, and opened a new era in aviation. The claim I have made for Langley may be concluded appropriately by an extract from an article in which he described this successful experiment:

"The aerodrome swept continuously through the air like a living thing, and as second after second passed on the face of the stop-watch until a minute had gone by and it still flew on, and as I heard the cheering of the few spectators, I felt that something had been accomplished at last, for never in any part of the world or in any period had any machine of man's construction sustained itself in the air before for even half of this brief time. Still the aerodrome went on in a rising course until at the end of a minute and a half (for which time only it was provided with fuel and water) it had accomplished a little over half a mile, and now it settled down rather than fell into the river with a gentle descent. It was immediately taken out and flown again with equal success, nor was there anything to indicate that it might not have flown indefinitely except for the limit put upon it."

This is not the place to enter into further detail as to the originator of aeroplane flight, and I am content to leave the evidence to speak for itself. I cannot refrain, however, from expressing surprise that no practical engineer made even a model aeroplane which would fly for even half a minute before Langley showed how to do it. Why not give credit to the pioneer, though he was only a man of science?

R. A. GREGORY.

## The School World.

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# The School World

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SIXPENCE.

## THE HISTORICAL SIGNIFICANCE OF THE CORONATION.

By F. J. C. HEARNshaw, M.A., LL.D.

Professor of Modern History in the Armstrong College of the University of Durham.

THE Form and Order of the Service that is to be performed and of the Ceremonies that are to be observed in the Coronation of their Majesties King George V. and Queen Mary in the Abbey Church of S. Peter, Westminster, on Thursday, the 22nd day of June, 1911," has been issued "by command of the King" from the University Presses of Oxford and Cambridge. As one reads the programme of the splendid pageant, and seeks to find the meaning of its elaborate details, one is impressed first by a sense of the antiquity and continuity of the English monarchy, and secondly by a realisation of the wide distance which divides its present constitutional position from that which it held of old. The ceremony with which Egbert of Wessex and Alfred the Great were consecrated and crowned more than a thousand years ago was essentially the same as that which will be used over their descendant and heir on the twenty-second of the present month.<sup>1</sup>

During this long period, although the order of service has undergone no less than five recensions—the approximate dates of which are 979, 1100, 1307, 1685, 1689—its main features remain unchanged. It is remarkable that even the crisis of the Reformation did not affect it, except in so far as it introduced a Dean of Westminster in place of the mediæval Abbot, and transmuted the Mass into a Communion service. Not until the accession of James I. at the beginning of the seventeenth century did the Latin of the mediæval order give place to an English translation. The succession of a Roman Catholic King in 1685 of course necessitated the omission of the Protestant Communion service, and Archbishop Sancroft, on whom the duty of arranging the coronation ceremony for James II. primarily fell, took the occa-

sion to make other and uncalled-for changes. Four years later the Revolution raised the demand for a further recension, this time of a distinctly Protestant type, and the form drawn up by Bishop Compton of London for the coronation of William and Mary has remained in use without substantial alteration ever since.

The antiquity of the Coronation service, however, implies the retention of many features which serve to bring home to the mind a lively consciousness of the changes which have passed over the English constitution since the Saxon and Norman days to which our records take us back. All the rites and all the forms of words belong to an age of personal and autocratic kingship, to an age when a strong king was necessary as a means of defence against external foes and internal anarchy, but when a strong king was, none the less, frequently an evil owing to his tendency to abuse the immense powers with which he was invested. In the Coronation service, exhortations, oaths, and prayers are multiplied with a view to keep the monarch if possible in the paths of justice and mercy. Process of time has reduced these impressive solemnities to the rank of mere pageantry, or at any rate has made them purely symbolical. For the exercise of the royal powers has passed into hands other than those of the King; and the men with whom rests the keeping of the royal oaths sit as passive spectators in the seats which encircle the altar and the throne.

But, though the Coronation is thus purely symbolical and full of fictions, it is from this very fact in harmony with constitutional reality. For in the process of development from autocracy to democracy in England the King has not been deprived of his ancient royal powers; he has simply been compelled to exercise them through the channel of responsible Ministers. He is still in theory lord of the land, the fountain of justice, the giver of the law, the source of honour, the commander of the army, the owner of the navy. But since he must exercise his vast and immemorial prerogatives in certain specified ways under penalty of deposition, democracy in England has established itself under the guise of monarchical forms. Thus as the King reigns vicariously, so is he crowned vicariously; and the

<sup>1</sup> Our knowledge of this most ancient order of service is based upon a couple of manuscript pontificals, both now in France, the one in the Bibliothèque Nationale of Paris, the other in the Bibliothèque Municipale of Rouen. The Parisian manuscript is said to be a copy of the pontifical of Archbishop Egbert, who occupied the see of York from 732 to 766 A.D. For particulars consult L. G. W. Legg's "English Coronation Records," pp. 3-13.



Coronation ceremony gains in solemnity when it is recognised that the King is crowned not as a person but as the representative and emblem of the sovereign people and of the Ministers through whom they rule.

Down to the seventeenth century the Coronation ceremony proper was preceded by two processions, the one secular in character, the other religious. On the day before the great festival the King established himself in the Tower, the chief fortress of his capital and kingdom, surrounded with a company of trusty followers whom he created Knights of the Bath, and with them advanced in force from the Tower to Westminster Hall. At Westminster Hall he placed himself in the hands of the clergy and underwent preparation for the service of the next day. On the morning of Coronation day the King, supported by two bishops and accompanied by his clergy and nobles, passed, clad in lowly raiment and barefoot<sup>1</sup> from Westminster Hall to the Abbey. There were no processions at all at William IV.'s or Queen Victoria's coronations. The procession to the Abbey was revived for Edward VII., and will be repeated for George V. The ancient military progress from the Tower has probably ceased for ever.

The ceremony in the Abbey consists of three separate portions; but they are not kept wholly distinct in the form of service. First, there is the recognition of the King by the people, together with the King's oath of good government. Secondly, there is the solemn unction. Thirdly, there is the delivery to the king of the crown and other regalia, and the placing of him upon the throne. The public recognition with which the service opens is a relic of the days when the monarchy was elective. Three times, viz., at south and west and north of the raised theatre or dais, does the Archbishop present the King to the assembled multitude and ask them if they are willing to do their homage and service to him. They signify their willingness by loud and repeated acclamations followed by the blare of trumpets. The King's response to this tumultuous greeting is his oath to rule his people in righteousness and equity; but in the order of service the taking of the royal oath is postponed to the later and more solemn moment which immediately precedes the anointing.

The second portion of the service centres round this anointing, which is, indeed, the essential feature of the Coronation as a whole. It typifies the divine origin of kingly authority; it confers upon the monarch a sacred character; it marks his consecration to his high task. This central part of the Coronation ceremony undoubtedly owes its adoption to the practice of the Hebrew people as recorded in the Old Testament. In the English order it is introduced into the Communion service, the most august of all the rites of the Christian religion. During the course of this service, after the Creed has been sung, one of the bishops—on the present occasion the Arch-

bishop of York—preaches a sermon which is, if the directions are obeyed, "short and suitable." Then follows the postponed oath which since the fourteenth century has been cast into the form of question and answer.

The contents of the oath have been varied considerably from time to time. In particular the vagaries of the Stuart Kings caused the introduction of clauses laying special emphasis on government according to law, and the maintenance of the Protestant form of religion. When the King has taken the oath, the Archbishop of Canterbury proceeds to the ceremony of the unction. In the later Middle Ages this ceremony was supposed to confer upon the King a semi-ecclesiastical character and miraculous powers; for it was performed, not with the ordinary oil of catechumens, but with the sacred chrism (a mixture of oil and balsam), with which was mingled a drop from a flask said to have been supernaturally sent down from heaven by the grace of St. Thomas of Canterbury. In virtue of this anointing, the monarch was able to "touch for the King's evil"—that is, miraculously to cure persons afflicted with scrofula. The Reformation saw the return to the simple oil; the accession of the house of Hanover marked the final abandonment of the claim to thaumaturgical power on the part of the King. Queen Victoria was anointed in two places only, viz., head and hands; George V. will be anointed, as was Edward VII., in three, viz., head, hands, and breast; some of the earlier kings were anointed in as many as seven, the additional places having been the inside of the elbows, each of the shoulders, and the middle of the back between the shoulders. The seven-fold unction symbolised the bestowal of the seven-fold gift of the Spirit; the present-day triple unction typifies particularly the grant of the graces of glory, valour, and wisdom.

The completion of the ceremony of the anointing prepares the way for the third and final portion of the service, viz., the delivery of the regalia and the elevation to the throne. There can be no doubt that each of the vestments with which the King is robed, and each of the ornaments which are handed over to him, once had its own peculiar symbolical significance. But the meaning of some of them has become obscure. Among the vestments the armill or stole seems to denote the sacred and semi-ecclesiastical character of the King, while the pallium or imperial robe probably asserts the independence of the English monarchy as against the claims of any Roman Emperor. Among the ornaments, the orb with the cross is an emblem of the supremacy of Christianity over the whole earth; the ring is the symbol of faith; the sword represents the secular power; the sceptre betokens regal authority; the rod surmounted by a dove suggests the milder and more paternal qualities of gentleness and mercy with which the perfect king should be endowed. The delivery of these minor ornaments fitly leads up to the solemn placing upon the King's head of the crown, in the symbolism

<sup>1</sup> In modern times the King has been allowed to be lightly shod.

of which all the others are included, and by means of which all are bound together and joined in an indissoluble unity.

Since the Protestant Revolution of 1689 the coronation has been immediately followed by the presentation to the King of a Bible, which the Archbishop places in his hands as "the most valuable thing that this world affords." Having received the Bible, the King is solemnly blessed and is then conducted to his throne, into which he is raised by "the Archbishops and Bishops and other Peers of the kingdom." Thereupon to the King crowned and enthroned come the princes and magnates to render homage and to swear fealty; and both the act and the words by which it is accompanied take us far back to feudal days. After this formality has been concluded, the short and simple coronation of the Queen is proceeded with. When that is over, the interrupted Communion service is resumed and completed, the "Te Deum" is chanted, the procession reformed, and a return made to Westminster Hall, where in old days the State banquet was laid.

It is well that in these days of rapid change and ceaseless innovation the old forms of this venerable ceremony should as far as possible be maintained. For they remind us of the splendid past of which we are the heirs, and they warn us that in all our zeal for progress we must take heed lest we destroy some of the gifts of antiquity which have not yet lost their worth.

#### EYE- AND EAR-TRAINING IN MODERN LANGUAGE TEACHING.

By W. E. LLIBWELLYN, B.A., B.Sc.

**I**F I attack once again the much-discussed problem of the training of the ear and eye in modern language teaching, the importance of the subject must be my excuse. Everyone now admits that children should learn to speak intelligibly and to understand what is said to them in the foreign tongue, as well as to read it, if only for the reason that the use of some oral work enables one to put much more practice into a given time, and because more is retained when appeal is made to more than one sense. And it is now generally admitted that children cannot acquire a reasonably good accent by mere imitation in class, any more than they can learn to understand the speech of others if the text is always kept under their eyes to prevent any dependence on the ear.

Much advance has been made of late (and this is largely due to the adoption of phonetic principles), but much remains to be done in correlating the appeals to the eye and ear. The adoption of a phonetic transcript does not solve all our difficulties. For instance, teachers often remark that children who have been taught to pronounce quite well from a vowel-chart, and to read quite fluently from phonetic script, relapse into a cruder speech when the "ordinary" spelling is attacked; and one still hears at times the complaint that these children do not learn to spell well.

I suggest that this means that this stage of transition is treated too hurriedly and too unsystematically.

The falling-off in accent is probably due to the teacher's return to the practice of patterning, and to a lack of vowel-chart practice, as well as to the influence of the associations with the mother-tongue which the printed characters set up.<sup>1</sup>

The weakness in spelling which is sometimes found is generally due to the confusion produced by cross-reference between the conventional text and the phonetic script, which sets up in some children a superposition of two mental images of the word.

Now it is obviously worth while to lay the foundations of successful later work by tackling these difficulties thoroughly, and I propose to outline a method for the application of the practices associated with phonetic work to the conventional script. This should help the child to carry into his new field the habits of strict attention which have been instilled by his phonetic training, should remove any possibility of guessing, and correlate the work of the eye and ear. The method can also be applied to those children who have not had the advantage of practice with phonetic script, though in that case more time and care must be expended.

Let us consider what problem is before us when we strive to teach a child to "read and spell." We have first to teach the sounds, second to lead the child to identify those connections between symbol and sound which are regular or frequent, and to generalise them, and third, to isolate the anomalies, and the *anomalies only*, for visual memorising.

As things stand, even when the sounds have been well taught as a preliminary, the child is often left to make these generalisations for himself. He "practises" reading and writing on the *solvitur ambulando* plan, "assisted" only (that is, hindered) by the teacher's pattern pronunciation, by an occasional remark of more or less general import, by a somewhat confusing reference to the phonetic script, or by his vague memories of it.

Is there any wonder that his floundering attempts often fail to solve this huge problem, that he either "gives it up" and guesses, or tries to memorise each individual word? In the old days a child might even wrestle with this problem right through his school life; is it unreasonable to ask that a month or two of careful work should be devoted to it under the new conditions?

Now, if vowel- and consonant-charts are built up in the conventional spelling on the model of the phonetic tables, this problem may be attacked thoroughly and in detail. The symbols of constant signification will be collected in a systematic

<sup>1</sup> It may be remarked in passing that the very foreignness of the phonetic symbols is an advantage to a beginner. He will master the characters in a few hours of careful practice, but will often have to depend on his ear, that is, on his mental or oral *pronunciation*, for the interpretation of a word or phrase. The mere aspect will sometimes convey no more meaning to him than to those of his elders who have not spent a little time in making the acquaintance of the "uncouth" symbols. In other words, the child is receiving constant training in the useful art of attending to each character, and of listening to himself.

order, their mere position on the chart will serve to impress their meaning, and the very presence of the chart will serve as a constant reminder of the generalisations already made, while the exclusion of the "irregularities" from the chart will give them just that emphasis which assists memorising of the form. ("I can't put it on the chart: you must retain the look of the word by the sheer force of your memory," the teacher will say.) Furthermore, such a chart will afford opportunities for the most rapid of recapitulation, and it will be possible to dispense with patterning altogether.

But, of course, the mass of rules which such a chart implies cannot be presented all at once. The chart must be built up step by step.

To illustrate in detail, and to take the case of French. Let me suppose that children have worked through some lessons in the phonetic text in such a book as Dent's First French Book, and are now going to attempt the same lessons in the ordinary spelling. And here may I beg that the considerate reader will take two sheets of paper—one for the "chart," and another for the "text," and follow out the method step by step in writing?

Have the phonetic chart hung up in view for *silent* reference. Take two blackboards, one for the "chart," one for the "text." Let the children read two or three lines from the phonetic text of lesson one, and then *close their books*, so that they may have the echoes in their ears, but no visual impression of the script.

"Printemps" is the first word for treatment.

Write *i*<sup>n</sup> in the position on the new chart corresponding to the place of [ɛ] on the phonetic table. The teacher need not pronounce this, if he makes it clear that its position indicates the sound shown in the same relative position on the old chart. Of course he *must* pattern if the children have no knowledge of phonetics.

A word or two of comment might very well be given here to show that the character "n" is associated with "nose" in many languages (*nez*, *Nase*). The teacher will remark that we say in loose phrase that we have to "speak through the nose" to pronounce it, and that *m* has much likeness to it.

Next write *e*<sup>m</sup> in the position corresponding to [ə]. Let the children attempt the sound for themselves.

Write on the "text" board: *i*<sup>n</sup> *e*<sup>m</sup> and have them pronounced.

Add the "effective" consonants *pr t* (*pri*<sup>n</sup>*te*<sup>m</sup>), and have this read. Lastly, add the "silent" consonants *in brackets* to make *pri*<sup>n</sup>*te*<sup>m</sup>*in*.

Note that the bracketing will emphasise the necessity of memorising these letters, as well as denote their "dumbness."

Next write *e* on the chart in the place corresponding to [ə]. I usually "half-encage" it on the chart, thus: e as a reminder that this

letter is often mute. Prefix "Le" to "printemps" on the text-board.

Neglect "Paul" for the moment and proceed to "Cécile": *é* goes on the new chart in the [e] position, *i* in the [i] place, and *c*<sub>1</sub> on the consonant-chart in the [s] position. The *;* after this *c* should be written in a distinctive colour, which should be used consistently henceforth to indicate a "pronounced" or "effective" letter. Each sign is to be pronounced by the class as soon as it is written.

On the text-board *é i* are now written; *C c l* are added to make *Cécil*, and lastly the "ornamental" letter *e*, which is also to act as a reminder that "l must be distinctly pronounced": *Cécile*.

And so on steadily word by word, in the same order:

- (i) Regular vowel on vowel-chart.
  - (ii) Such consonants as need special attention (*only*) on the consonant-chart.
  - (iii) Vowels in text.
  - (iv) "Effective" consonants in text.
  - (v) "Silent" and "ornamental" letters in text.
- Let the children read at each stage.

A few more notes may perhaps be useful.

When "Marie" is reached attention must be called to the fact that the symbol [a] does not occur in "print." Write *a* in the new chart in the space corresponding to the phonetic [a], put *r* after it in the "effective" colour, thus: *a*<sup>r</sup>, to remind the children that *a* followed by *r* has *always* the sound of [a]. Put also *a* in the [a] place, and emphasise the circumstance that one "print" symbol has to stand for two distinct sounds [a a]. Then remark that *a* has to be substituted in "writing" for this "print" letter. When *ar* is written on the text-board some children will probably read it [ar]. Correct by *pointing out the position of a*<sup>r</sup> on the new chart.

When "Louise" is attempted, it will be well to interlace the letters *ou* (thus: *UU*) on the chart as a reminder that these two signs combine to make one sound. Write first *ou* for [u], then again *ou* in the [w] place, and place after it *i* in the "effective" colour (*ow*). It would be well if the semi-vowels [j] [y] [u] were written immediately above [i] [y] [u] in the phonetic chart, one will then be able to have, when the conventional chart is completed, the convenient arrangement:

|                       |                       |                        |
|-----------------------|-----------------------|------------------------|
| <i>i</i> <sup>r</sup> | <i>u</i> <sup>r</sup> | <i>ow</i> <sup>r</sup> |
| <i>i</i>              | <i>u</i>              | <i>ou</i>              |

To show that *ise* is pronounced [i:z] put on the new consonant-chart *as*<sub>a</sub> in the [z] space, explaining that *a* denotes any vowel, so that a single *s* between two vowels is always pronounced [z]. This will act as a constant reminder of the rule.

When the teacher harks back to "Paul," he should explain that the vowel "cannot be put on the new chart" because its pronunciation, in this word, is an "exception" [ɔ]. He will then underline *au* in the text as a reminder that the pro-

<sup>1</sup> To avoid confusion I shall use square brackets henceforth to enclose phonetic characters.

nunciation is irregular, that the irregularity must be remembered, and that the child must refer to the phonetic text if he forgets. For some time henceforth such reference to the phonetic text should only be made in such cases. Let the child concentrate his attention for a while on the new script.

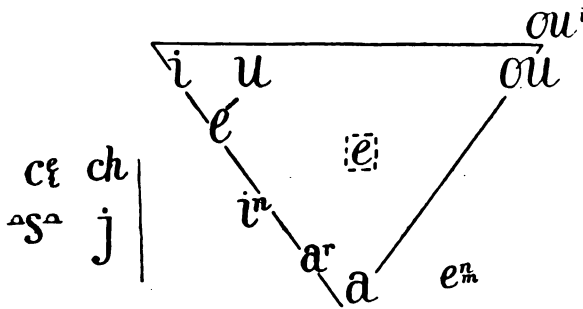
**Do not attempt too much in one lesson : if two or three lines are completed much will have been done.**

The “transition ” text will now run :

## *Le printemps*

**Paul, Cécil<sup>e</sup>, (H)enri, Mari<sup>e</sup>,  
Charl<sup>es</sup> Louis<sup>e</sup>, Juli<sup>e</sup>,**

and the consonant- and vowel-charts stand:



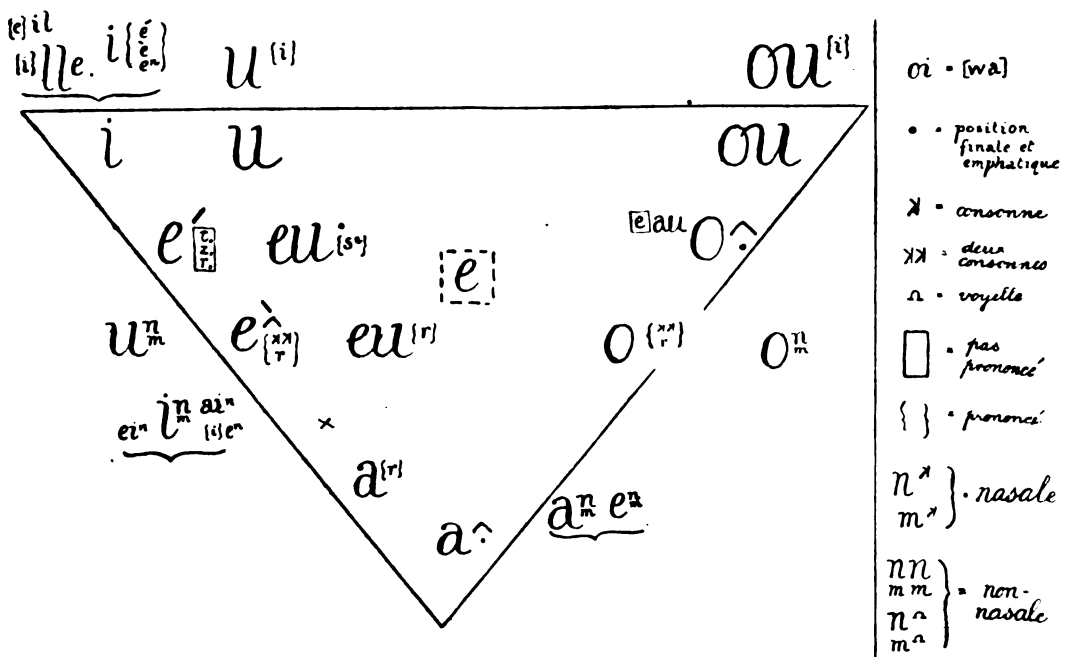
Let the children make a careful fair copy of the new chart so far as they have gone, and also of the transition text. Recapitulate the charts and

reproduction of the text, with the phonetic chart removed.

This procedure may seem slow, but it will at any rate give the teacher a very vivid idea of how much the child has to learn, and of the necessity for a systematic piecemeal presentation of the mass of "rules" he has to learn, and experience will show that children are interested in the process, and that the time occupied is very well spent indeed. Furthermore, the process soon becomes quite rapid. After lessons one and two of "Dent" have been worked through, the chart may be presented in its definitive (or nearly definitive) form, and practised as a whole. Thenceforward only the new words need such treatment, with insistence on anomalies. A few weeks of such practice following on a few months of phonetic work will enable children to read fluently without any sort of pattern from the teacher, and with an accent and a certainty of spelling unattainable by years of "practice" in the old style.

The completed chart will serve as a very valuable guide in all the child's subsequent school life, and should be hung side by side with the phonetic table and referred to at every lesson. It will be found of especial use in aiding spelling, and in such lessons as "dictation."

I suggest as its final reference form the table below, though a chart less full will serve at the earlier stages, and more might very well be added later. This chart and much matter illustrating the use of the "transition" script (including



impress the fact that the new spelling must be learnt.

At the next lesson the children should attempt the reproduction of these charts from memory, with the phonetic charts in sight as a guide to alignment and position, and then the

lessons one and two of the "First French Book") will be found in the French Primer now in course of publication by Messrs. Dent and Co.

*Note.*—When several symbols or compounds represent the same sound, the relative frequency of occurrence may be shown by variations of size.

## A PLEA FOR ENGLISH GRAMMAR.

By FRANCIS A. CAVENAGH, M.A. (Lond.)

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"There is no such thing as English grammar in the sense which used to be attached to the term."—Board of Education Circular 753.

THE disrepute into which the study of formal grammar has fallen is an obvious symptom of that modern educational tendency which cultivates "substance" rather than "form," the meaning rather than its expression. When translated into some such metaphor as that of the kernel and the husk, this theory seems plausible enough; but it is none the less an exaggeration and a fallacy. For if matter and form are but two aspects of the same thing, the "concave" and the "convex" (to take Aristotle's illustration), it is clear that we cannot foster one at the expense of the other: each will suffer. And it is because form was so long the favoured child that it became spoilt; whilst in our endeavours to do justice to matter we are now apt to neglect form altogether.

In the particular case of English grammar, however, we must remember that our distaste has been created by generations of bad theory and bad practice. Treatises on English grammar, with their cross classifications and "circular" definitions, their mechanical exercises in parsing and analysis, were enough to damp the keenest ardour. Again, the practice was almost entirely deductive; nor is the reason far to seek. These books were framed on the model of the Latin grammar, which must, almost of necessity, proceed deductively. Moreover, all sorts of useless "exceptions" were dragged in to form a parallel to *supellex* and *benevolentissimus*. Hence, especially as so little time was given for English, boys left school with no knowledge of literature (except what they may have gained from the painful verbal study of a few plays of Shakespeare) and no facility in writing their language. Little wonder that many authorities prefer nowadays to let grammar go by the board.

Such are the general reasons for the modern discredit of English grammar. There is, however, at the present moment, a secondary cause—but not the least powerful—that the subject lies under the official<sup>1</sup> ban of those who administer, and those who inspect, the education of this country.

It may, therefore, be not entirely useless, commonplace as it may seem, to frame a brief case for the study of English grammar in secondary schools. Its chief points are perhaps these: that it serves as

- (1) a mental discipline;
- (2) a source of increasing the vocabulary;
- (3) a help in avoiding certain mistakes in expression; and
- (4) an indispensable "propædæutic" to the study of foreign languages.

First, as regards mental discipline. There can be no doubt that grammar tends to produce an

analytic habit of mind. Constantly to break up language into its component parts helps one to a clearer understanding not only of the function of words, but also of the meaning they express. Thus grammar may serve, though in a smaller degree, the part of logic in enabling us to see through fallacies and mere collections of words. Again, if taught properly, it will encourage generalisation, classification, and definition. Obviously the same "gymnastic" may be found in mathematics, science, history, and other school subjects; yet perhaps nowhere is it so clearly and strictly carried out as in grammar.

The second claim, that it enlarges the vocabulary, can hardly be gainsaid. Systematic lessons on word-building, if coupled with exercises in which the newly formed words are used, will save a boy from many slipshod and illiterate formations—"timidness," "anxiousness," "justfully," and the like. He will learn, too, when adverbs should be used, and not adjectives; e.g., "he ran quickly." Definite lessons should also be given in variety of expression by substituting adverbial and adjectival phrases for adverbs and adjectives, and *vice versa*. The average boy, even if he knows some Latin, will not usually see the connection between "gradually" and "by degrees." Whilst if etymology be included under grammar, there is hardly any limit to the delightful vistas that are opened; though historical grammar naturally would not be taught at an early stage.

Further, a boy without learning grammar cannot be expected to know the many useful terms of the science itself. Such words as clause, phrase, agreement, parenthesis, ellipse, impersonal, are, to say the least, very convenient ways of referring to common features of language. But on this point more will be said in connection with the teaching of foreign languages. It may be added that a boy comes across for the first time as grammatical terms many words which later should form part of his general vocabulary. The technical use of words like absolute, relative, antecedent, subordinate, auxiliary bears a certain resemblance to their common significance; and it will probably be found that many people who do not continue their studies beyond school have a firmer grasp of these words, acquired through grammar, than of any other abstract polysyllables.

In the third place, nobody can deny that English grammar is the only guide in certain difficulties of expression. It is usually argued that we learn our language by hearing it spoken—and so we do: hence the many mistakes that disfigure the speech of most educated people. The use of "like" for "as," "each" and "every" as plurals, "it was him," "those kind of things," the lax agreement of participles, the wrong preposition after adjectives, the "split infinitive," the wrong case of the relative and interrogative—these and other mistakes must usually be pointed out to boys; whilst in any case the reasons for avoiding them can be explained only by means of grammar. Naturally, the amount of such work

<sup>1</sup> Circular 753.

that is necessary will depend upon the environment of the boy; if educated English is practically a foreign language to him, we cannot appeal to his ear to decide whether a sentence sounds right or wrong; we shall probably have to give him general rules and teach him to apply them. Yet the 350 pages of "The King's English" would seem to suggest that it is not only the elementary-school boy who does not know his language perfectly.

Lastly, we come to the value of English grammar as a preparation for the learning of foreign languages. It is now a commonplace that grammar should be taught inductively, by examples; and it is equally plain that it is only in the mother-tongue that this method can be used with full success. Yet, curiously enough, we have modern language teachers to thank for the discovery. They argued rightly that we learn to talk by talking, not by grammar rules; but they seemed to forget that this process of learning English lasted some seven or eight years, during which nothing but English was spoken or heard—and that even then the result was only a child's knowledge of the language. They can hardly expect to teach a foreign tongue in three or four years, with some half-dozen lessons per week, and with no aid from the pupils' environments. Thus the "direct method," unless it was greatly modified, had to be given up for foreign languages—for French and German, and *a fortiori* for Latin or Greek.

But teachers of English may well take the hint. In the mother-tongue it is possible to assume a fair knowledge of what sounds right and wrong, and it is possible, by examination of many instances, to formulate a rule. Thus we can, in teaching English grammar, give that education which the upholders of the "direct method" claim to bestow. We shall cover the ground slowly, no doubt; but we shall (as said above) instil a certain habit of generalisation and accurate definition in a way that no deductive teaching could imitate.

Even at the risk of being tedious, it may be as well to explain at slightly greater length what is meant. In the deductive method of teaching English grammar one fired off a general rule, such as "the relative agrees in number, gender, and person with its antecedent, but takes its case from its own clause." This had to be learnt by heart, with some two or three examples. A considerate master might perhaps explain the derivation of "antecedent," and illustrate the rule from Latin. Then the matter dropped. The natural method is to take a large number of instances, suggested by the class; for, *since it is their own language*, they can do this; then to make them observe the common properties and to watch how the "who" or "that" behaves. They can now make some sort of a crude rule; and if they are now supplied with the terms "relative" and "antecedent," they can state their result quite clearly. But obviously this method is suited to the mother-tongue alone; and it is suitable only with boys whose upbringing

has supplied them with a fair knowledge of accurate English: a boy who hears nothing wrong in "the man as I seen" must, at any rate in school, be treated by deduction.

Moreover, grammar will no longer be dull and meaningless: boys delight in any sort of collection, even that of similar words and sentences. Instead of having vague dogmas, couched in abstruse terms, hurled at their heads, they will themselves seek for the best expression of the common element they perceive; and they will be in a position to welcome the right definition which just manages to state perfectly what they have been endeavouring to express. Again, when they understand what it means, they may be given the ordinary grammatical names, not only because most of them have some significance, but because of their convenience for reference. And in this connection it may be added that we must have a standardised terminology for all languages taught in school. Such a terminology has already been made by the committee appointed for the purpose; but until grammars are written accordingly its labours will remain of little service.

Moreover, rules which have been reached in this way will be regarded in their true light—simply as convenient generalisations, and not as existences in *rerum natura*, with equally self-existing "exceptions." Language will be a far more intelligible affair than it was to most boys: it will no longer be a stupid game played with many complicated and irrational rules.

However, we must return to the importance of a knowledge of English grammar as a foundation for foreign languages. The need of an unvarying terminology really contains the root of the matter. Every term necessary to the simple grammatical acquisition of (say) Latin and French should, wherever possible, have first been understood and learnt in English. Nothing can be more annoying than, when introducing, e.g., the accusative case, to find that boys do not know what "object" means.

Now it may be said that we have no accident in English, and that therefore we cannot teach declensions and conjugations—nor can we, fully. But it is possible at least to give some idea of a declension from our pronouns; it is easy to teach the conjugation of tenses and the comparison of adjectives by drill in paradigms, which the boys themselves can draw up from their knowledge of English. As it is, many boys have to learn *sum, es, est, &c.* (or *je suis, tu es, &c.*), purely by rote, without having run through similar forms in their own language. Indeed, it will be found on examination that we can, even with our scanty relics of accident, explain nearly all the difficult terms that adorn Latin or French grammars. Perhaps the one thing we do lack in English is grammatical gender—and yet English grammars must needs drag it in under the disguise of sex, and so confuse people's ideas to the end of their days.

But in the case of syntax there can be no such doubt. Almost every term required in Latin and

French syntax can be taught first, and by examples, in English. To take but a few illustrations: the object and the complement can be made far plainer in English, and the reason for their treatment more intelligible. So with the rules for relative and interrogative pronouns. Again, it is possible to discuss and name the chief varieties of adverbial clauses and phrases, so that a boy will find nothing really new when he comes in Latin to deal with final and consecutive clauses and the like. Nor is the sequence of tenses really very different in the two languages, though it is rarely taught at all in English—with the result that a boy who gaily writes "I should be glad if you will" can (after how much toil?) correctly apply his rule-of-thumb in Latin. Lastly, there is no reason why reported speech should not be definitely taught in English to schoolboys, and not be left, as it is, to the artistic sense of journalists. Our lack of pronouns for the third person will prevent it from ever having any great beauty, but it need not be ambiguous and ugly. And, in spite of the great differences in construction, a previous acquaintance with the English form of speech will greatly help a boy who is starting *oratio obliqua*.

And if anyone says that of course nobody would dream of teaching all these things in Latin without first explaining them in English, he will be merely establishing the position—that it is impossible to teach any foreign language without formal grammatical training in the mother-tongue. It simply means that the man whose business it is to teach Latin or French is forced to give hasty and unsatisfactory lessons in English grammar in order to get along at all, thus wasting his own time and spoiling the continuity of his course. After all, his chief object is to teach Latin or French, and not to give even the best lessons in English grammar. The modern curriculum is too full to allow much time for any one subject, so that it is no longer possible to drone along in the old classical groove, where at least an excellent formal training was given. The Latin master in the average secondary school of to-day must give all his time to instilling some slight knowledge of Latin; still more is this true of the modern language master. In fact, English is the only language in which we can give the really valuable discipline of grammar, for it is the only language which we do not have to teach as a spoken tongue.

We return, indeed, to our first point: that English grammar must be taught as mental discipline. Without grammar not only will a boy's knowledge of his own language be imperfect, but his attainments in any others will be empirical and unscholarly.

## SCIENCE AND THE DOMESTIC ARTS IN THE SECONDARY GIRLS' SCHOOL.

By JESSIE WHITE, D.Sc.

SEVERAL fundamental questions need settling before the proper relation of the science teaching in girls' schools to the teaching of the domestic arts can be determined. The solutions to these questions are all involved in the saying, "An art is an art and a science a science," which saying is no mere truism.

With regard to the schools the situation is this. Nature-study has very properly claimed and won part of the early years of a girl's school life. In far the greater number of girls' schools in which public examinations are prepared for, botany is the subject chosen in preference to chemistry, and the amount of physics and chemistry done preliminary to the botany is reduced to a minimum. The Board of Education regulations unfortunately allow the substitution of a domestic arts course for science and mathematics above the age of fifteen, instead of securing that sufficient time is given prior to fifteen, and in consequence of this and the vague talk about "domestic science" and "home science," even the science which is done previous to the age of fifteen is in danger of being regarded rather as applied science than as an introduction to organised science.

What is the consequence? An outcry from the universities for better grounding in physics and in the application of mathematics to physical problems, and a similar outcry for better science work from the domestic science teachers, who recognise the necessity for a good grounding in physics and chemistry for the pupils who come to them for professional training in the domestic arts. They do not want the pupils who, above the age of fifteen, have substituted practical work in domestic subjects for science, neither do they want those who have specialised in botany at the expense of a sufficient training in physics and chemistry. On the other hand, there is the well-founded and growing opinion that girls should receive training in the domestic arts at school.

But why? As a means of earning a livelihood? It is rather because the domestic arts are the fundamental basis of civilised life, because they are essential to home-making, and because without the power of home-making no human being is complete. There has been failure to recognise this in the past. In an address given by Miss Alice Woods on the curriculum in girls' schools she speaks of training in the domestic arts as dispensable in the case of girls going to business: yet it is just for such girls that it is most important.

At the present time the necessity for training in the domestic arts is admitted, but a new cry is heard. "The basis of the work done in the domestic arts course must be scientific," with the corollary that it must be postponed.

But such a proposal arises from failure to recognise the difference between an art and a science. In the history of the race an art pre-

*A Book of French Songs.* Selected by L. A. Barbé. Phonetic Edition. Transcribed by Mme Giraudeau. 47 pp. (Blackie.) 6d.—It was an excellent idea to issue this book of songs with the text in the phonetic transcription of the International Phonetic Association. Mme Giraudeau has done her work very well. The number of misprints is commendably small.



cedes the corresponding science. Agriculture as an art existed long before agricultural science came into being. In this connection I quote from Mr. A. D. Hall's address to the Agricultural Section of the British Association :

When science, a child of barely a century's growth, comes to deal with a fundamental art like agriculture, which goes back to the dawn of the race, it should begin humbly by accepting and trying to interpret the long chain of tradition. It is unsafe for science to be dogmatic; the principles upon which it relies for its conclusions are often no more than first approximations to the truth, and the want of parallelism which can be neglected in the laboratory gives rise to wide divergencies when produced into the regions of practice.

The domestic arts likewise go back to the dawn of the race, and for much of what tradition has handed down, science has attempted to find no interpretation and has none to offer. This is particularly true in the sphere of cooking, and yet cooking as an art is well developed.

Just as in the history of the race the art precedes the science, so in the development of the individual the impulse towards the art comes first. The delight in doing, in constructing, is certainly prior to the time when the acquirement of general ideas can be profitably engaged in. It belongs to the perceptive stage of development. It is for this reason that there should be no part of a girl's school life in which she is not acquiring dexterity in some domestic art. We do not postpone music lessons until the pupil is old enough to understand the theory of music, and we should hardly be likely to accept knowledge about music as of equal value with dexterity in the art of playing.

What is wanted is to realise that in school every girl should become expert in the essentials—the bare essentials—for keeping a home going. These, after all, are not very extensive. First comes knowledge of the house itself, which should be the result of the children's own observations. It would be difficult to find a school from which it would be impossible for the children to gain access to houses in process of being built, and from such the children would gain ideas of the various kinds of work and kinds of material concerned in making a house. Visits to historic houses in the neighbourhood would lead to the idea of the advantage of sound building, and plans might be drawn of various houses seen, thus affording opportunity for lessons in mensuration. The drainage and lighting of the house could be studied in a general way, and the comparative modernness of our present methods would bring before the children the debt we owe to science in increasing the comfort of our lives.

A natural transition would be made to ways of keeping the house and furniture clean. The art of cleaning would be entered upon. The school itself would furnish the opportunity of practising the most important kinds of cleaning, but articles such as copper pots, hair-brushes, &c., could be brought in from outside. It surprised me to hear a headmistress say a few weeks ago that three

hours was considered the proper length for a domestic arts lesson. For young children, such as I have in mind, this would be out of the question. Quite short lessons, three-quarters or even half-hour lessons would be ample, provided the teacher was allowed time for sufficient preparation for the work. Window-cleaning, paint-cleaning, floor-cleaning, linoleum-cleaning, the cleaning of various metals, such as silver, aluminium, steel, &c., could be learnt as arts. The teacher would give simple and sensible directions—as few as possible—embodying the best methods human ingenuity has devised, and the children would aim at producing the best possible result in the deftest and neatest manner. Scope for experiment would present itself in a choice between alternative methods of obtaining the same result, and the economic reasons which are apt to determine the adoption of one method in preference to another could be worked out by the children. The teachers of English could meanwhile test the children's vocabulary acquired in connection with what they were learning, and widen their historic and geographical outlook in regard to the materials used.

The washing of clothes would follow, and small garments would, of course, be used. I well remember the interest with which, at the age of eight or nine, I watched the process of starching, and I have seen quite young children in one of the holiday schools looking very happy over their ironing.

The great advantage of beginning this work young is that from the first the children acquire good methods, especially if the teacher is careful to exorcise all slovenliness and want of care in working. Coming as so many of the pupils in our secondary schools do to-day from poor homes, the interest awakened in school in what goes on in the home cannot fail to react advantageously on both.

Then instruction in cooking might begin. When one comes to reflect how many important things one can think of which can be done in even half an hour! Potatoes and most vegetables can be cooked. Porridge and blanc-mange can be made, bacon can be fried, eggs can be cooked in various ways, a chop can be grilled. Tea, coffee, or cocoa can be made.

All these arts involve free movements, and I would let them, therefore, precede the more sedentary sewing, garment-making, mending, and knitting, which should prepare for the sewing necessary in an ordinary home. A few sewing-machines suffice for a fair-sized class; I have known good work done in a class of eighteen with one.

The advantage of a handicraft as an educational instrument is that it affords relief from the ordinary sedentary school work, affords the pupil knowledge of real things, and of the patience and intelligence which must be exercised if a real result with real things is to be obtained, and makes an appeal to those who are not successful with head-work and often pass from class to

class up a school without learning what work is. The important thing in teaching these arts is to select small tasks, such as the children can complete without fatigue, to give a few directions as possible, and to vary the tasks so that dexterity is acquired without the work becoming a mode of routine employment, and to keep the intelligence alive with regard to the materials used by conversation about the work. I recently visited a Trade School Exhibition. I was looking at a dress made by two girls, and not recognising the material I asked them its name. Neither girl knew, and I was amused to see from their faces that my question had made them aware of remissness.

What ought to be the outcome of all this work? A great deal of practical knowledge of a variety of materials, an increased vocabulary which would need no correction if the teacher has been careful about accurate expression, a great deal of useful dexterity and some power of self-criticism, also if the English teachers have added their share to the work, a widened outlook with regard to the historical background and value of the home.

The course of physical science which best succeeds the nature-study course at the age of thirteen brings in a new point of view. The interest of the girls will now be centred in acquiring from their study of individual cases general ideas, both those involved in classification and those concerned in detecting relations of cause and effect. There are certain principles and ideas which are essential to the understanding of the physical sciences, and these can be reached by the pupils by means of reflection on their own experiments, if those experiments are suggested by a teacher who knows the degree of accuracy which can be expected and the use which can be made of each one. There is no single line of advance; many are possible; probably every teacher keenly interested in her work frequently tests the fruitfulness of some change of order. But one thing is clear: if the result is to be acquaintance with an organised science, as the domestic arts teachers demand, then no extraneous conditions must be allowed to determine what experiments are done, but these must be chosen on account of suitability to the powers of the children and of value for the purpose in hand. From the point of view of the so-called "domestic science" it is a pity that organic chemistry is less simple than inorganic, and lends itself less well to the needs of the beginner. Nevertheless it is so. To concentrate attention on the coagulation of albumin at an early stage of chemical studies is simply to spend time over an empirical fact which is of interest in cooking but of no importance whatever to the beginner in chemistry.

Although I would strongly deprecate the teaching of physics and chemistry merely as applied sciences, understanding by that the admittance of a selective principle outside those sciences themselves, yet application must be constantly kept in view. Wherever substances made familiar to the children in the domestic arts work can suitably be made use of by the science teacher in the science

work, this should be done. The interest of the girls will be quickened when they find that their science work enables them to understand in a fuller way facts that they had learnt in the arts course—why, for instance, they did not use soda for cleaning an aluminium saucepan, why they could soften hard water with lime. The understanding they gain now will be a proper understanding adequately prepared for by a teacher who knows that her business is to weave from the results of experiments a tissue of organised ideas. Reasons given in the domestic arts course without this adequate psychological preparation can produce either no result or mental indigestion.

Therefore let the science teacher know exactly what the children have done in the domestic arts course; let her scan the work from end to end with fixed intent to apply to it whatever can be applied of the knowledge they are now building up, interest in which will thus be vivified. But let the arts teacher, however versed in scientific lore she may be for her own well-being, remember that she is teaching an art, and that her business is to hand on the best tradition, to help the children to attain the best possible result in the best possible way. Her science will show itself rather by the accuracy of language in which she speaks of what is done than by giving reasons for which the children are unprepared. Her real task is to arouse in them the satisfaction of the craftsman—that satisfaction which the philosophic friends of Benedict Spinoza, himself lens-maker as well as philosopher, professed themselves unable to understand—an essential factor in the happiness and well-being of the human race, one not incompatible with the exercise of the higher faculties upon which science depends, but one which should be prior in order of development. It is neglect to foster this satisfaction at the right period when the propelling impulses assert themselves that has made the period of improved education a period of housewifely decadence.

#### MARK-REDUCTION AND A NEW SCHEME.

By GEORGE C. WOODS, B.A.

THE pleasure which the schoolmaster feels at the approach of holidays is damped by the apprehension with which he regards the last few days of term—the days, and often nights too, of ever-accumulating labour. We know the scene in the common room: papers being corrected and then lost; papers found again; howlers described; messengers running in and out; interminable additions of thousands of marks, and reduction to strange maxima of discussions as to the comparative merits of logarithms and long division; both ways tried, results slightly different; recriminations, &c. Sometimes, when waiting for some necessary statistics from another member of the staff, the master has time to wonder if any advantage is derived by his pupils commensurate with the labour involved. He cannot help coming to the

conclusion that this labour is largely fruitless, that simpler methods might give equally good, or even better, results. It is, of course, desirable to know the order of the whole Form, whether prizes and promotions depend solely upon this order or no. But, granted this, does it follow that the usual methods of obtaining this order are as simple or even as fair as they might be?

Omitting for the present the question of simplicity, it is clear that it is most difficult to find a fair system in a school where there is considerable reclassification of the pupils for different subjects. Here the questions arise whether, and, if so, to what extent, a pupil should have more marks than another for being in a higher set in a certain subject, but in the same Form. For reasons which will appear later, the discussion of this difficulty is postponed to the end of this article.

As the relative importance of the different subjects is always considered in the formation of any system of mark-reduction, we may take the following as a type of most systems. In this certain maxima are fixed to which the different subject-masters are instructed to bring their marks for the term. These maxima usually, and rightly, are proportional to the amounts of time devoted to the study of the different subjects. The subject-masters reduce their marks accordingly and send them to the Form-master, and he adds up the totals, and so obtains his form-order. This scheme, together with all others where maxima only are mentioned, has a considerable element of unfairness, because the order thus obtained depends upon an amalgamation of different standards of marking adopted by different masters, even if the pupils are identical, the subjects equally important, and the maxima, to which the marks are brought, equal.

This can, perhaps, best be shown by an example. Two masters take the same group of pupils, one in history, one in geography, and as these two subjects are considered equally important, the masters are instructed to bring their marks for the term to equal maxima. The two, however, differ considerably in their style of marking: the history teacher is of the generous type, gives few pupils less than half marks for the lesson, and often gives full marks to several pupils; while the geography teacher is of a different type, in that he takes off marks for several faults which might have been overlooked by his colleague, with the result that very few pupils get full marks for the lesson, and the majority get only half marks or less. When these masters send in their totals, the history teacher's marks are found, perhaps, to range from 60 to 85 per cent., while the geography teacher's have a much wider range, say from 30 to 75 per cent. When these marks are combined, the resulting order for the two subjects is found to approach much more nearly to the geography order than to the history order. This is, of course, due to the fact that the way in which marks affect an

order depends not upon the actual value of the marks, but upon the differences between them.

In many schools this difficulty is met successfully by some such scheme as the following (in use at Winchester College at one time). In this the marks have to be reduced in such a way that the difference between top mark and bottom mark in mathematics shall be one-third of the difference between top mark and bottom mark in form subjects; while the difference between top and bottom in French or German is reduced to one-fourth, and in science marks to one-tenth, of the difference between top and bottom in form subjects.

This scheme is undoubtedly an improvement, partly because it distinguishes between the top mark actually obtained and a theoretical maximum, chiefly because it reduces the difference between maximum and minimum to the correct amount, instead of the maximum only; because it reduces differences between marks instead of the actual marks only. But not only is this scheme complicated, if accurately carried out, but it is also open to another objection which has not yet been considered.

Let us take an example as before. In this case the methods of marking adopted by two masters may be assumed to be identical, but in one class there is one pupil who is specially brilliant in the subject, while there is no pupil specially brilliant in the other subject. Lower down the Form are two pupils, of whom one is as much ahead of the other in the former subject as the other is in the latter, so that they should be about equal in the two subjects combined. Does the Winchester method bring about this equality in their marks? No; because the top mark given in the former subject is, owing to the one brilliant boy, greater than the top mark given in the latter, while the bottom marks are about equal. Thus the difference between top and bottom is greater in the former subject than it is in the latter, so that the differences throughout in the former subject have to be reduced in an unduly large proportion. This makes the former subject less important in determining the combined order than the latter subject; so that instead of our two boys lower down the Form being equal, the one who is better in the latter subject is ahead in the two combined.

These objections can be summed up as follows. The theoretical maximum and minimum make an unsatisfactory standard because they are never actually obtained, seldom nearly approached, and are consequently artificial; while the top mark and bottom mark depend upon two individuals and are therefore uncertain.

It should be added that the plan adopted in some schools of giving a fixed number of marks for every lesson throughout the term is not only impracticable, unless there is unusual uniformity in the lessons from day to day, but is also open to the same objections, although it certainly gives maxima in proportion to the importance of the different subjects.

The Winchester method might be amended as follows. Instead of top mark, take the mark which has been or would have been obtained by a pupil of exceptional industry and ability; and, instead of bottom mark, the mark which has been or would have been obtained by a pupil of exceptional idleness and stupidity. But, although this method, as amended, would be as fair as any method could be, it would certainly worry any master with a distaste for statistics.

What we require, then, is a scheme which is fair, that is, free from the faults which have been described, but is at the same time simple in practice.

The following scheme was suggested several terms ago by the present writer to the headmaster of Uxbridge County School. Having had a fair trial there, it has achieved such a measure of success that it can confidently be recommended for use in other schools. In some respects it is similar to a scheme which the headmaster had seen in use in Danish schools, but it differs from the Danish scheme in most essentials. The writer does not claim that any of the ideas are original, except in one unimportant detail, but, so far as he is aware, the combination is new.

**SCHEME FOR MARK-REDUCTION AS NOW IN USE AT UXBRIDGE COUNTY SCHOOL.**—(1) During the term each subject-master marks in any way, approved by the headmaster, which suits himself and his lessons.

(2) At the end of term he arranges the names in order of merit, and groups them into "classes" as follows:

|               |                                 |
|---------------|---------------------------------|
| "Red A" ...   | Exceptionally good pupils only  |
| A ...         | Very good—good                  |
| B ...         | Very fair—fair                  |
| C ...         | Fair—only fair                  |
| D ...         | Poor—decidedly weak             |
| "Small d" ... | Exceptionally weak pupils only. |

It should be considered a great honour for a pupil to get a "Red A," and a disgrace to get a "Small d." Bearing these objects in mind, the subject-master is recommended first to mark off these extreme classes, and then more or less evenly to divide the remainder of the set into the ordinary Classes A, B, C, D; but it will often happen that he will consider no pupils good enough for "Red A," and often none bad enough for "Small d"; and also it will usually happen that there is some obvious break in the marks which requires that the dividing line between two classes should be at that point.

(3) "Class-marks" are then assigned as follows:

|             |   |               |   |
|-------------|---|---------------|---|
| "Red A" ... | 5 | C ...         | 2 |
| A ...       | 4 | D ...         | 1 |
| B ...       | 3 | "Small d" ... | 0 |

(4) These class-marks are multiplied by different numbers corresponding to the amount of time devoted to the different subjects. At Uxbridge the numbers are:

|                 |   |               |   |
|-----------------|---|---------------|---|
| Mathematics ... | 5 | French ...    | 4 |
| Latin ...       | 4 | Scripture ... | 2 |
| &c.,            |   |               |   |

these numbers being the number of periods per week during which these respective subjects are

studied. The number of periods per week is a specially convenient number to choose, because if a few individual members of a form do different work, the total mark obtainable is unaltered; e.g., suppose a boy gives up two periods of mathematics per week to do Greek, a subject which he would otherwise not learn, his mathematical "class-mark" is now multiplied by 3 instead of 5, and his Greek "class-mark" is multiplied by 2 instead of there being none. Thus if he does equally well in Greek, he will get marks equal to the mathematical marks he misses.

(5) After multiplication there is a certain amount of readjustment, according to the closeness or otherwise of the original marks.

(6) These subject marks are sent in to the Form-master, who adds them up and so gets his form-order.

**ILLUSTRATION OF SCHEME OUTLINED ABOVE** (the school, names, and marks are fictitious).—A class of twenty boys have been working at a certain subject for three periods a week, and, including an examination, their marks are as in the first column:

|              |      |             |      |         |   |    |    |
|--------------|------|-------------|------|---------|---|----|----|
| Atkins ...   | 2347 | Egerton ... | 2728 | } Red A | 5 | 15 | 15 |
| Bates ...    | 1985 | Smith (ma.) | 2680 |         |   | 15 | 14 |
| Birch ...    | 1832 |             |      | } A     | 4 | 12 | 13 |
| Clark ...    | 2016 | Cornwallis. | 2541 |         |   | 12 | 13 |
| Cornwallis.. | 2541 | Davies ...  | 2532 | } B     | 3 | 9  | 11 |
| Davies ...   | 2532 |             |      |         |   | 9  | 11 |
| Davis ...    | 1701 | Gould ...   | 2364 |         |   | 9  | 9  |
| Denton ...   | 1643 | Atkins ...  | 2347 |         |   | 9  | 8  |
| Egerton ...  | 2728 | Perkins ... | 2305 |         |   | 9  | 8  |
| Fairweather. | 1980 | Jackson ... | 2248 | } C     | 2 | 6  | 7  |
| Gould ...    | 2364 |             |      |         |   | 6  | 6  |
| Jackson ...  | 2248 | Lawson ...  | 2059 |         |   | 6  | 6  |
| Lawson ...   | 2059 | Clark ...   | 2016 |         |   | 6  | 6  |
| Leech ...    | 1997 | Leech ...   | 1997 |         |   | 6  | 6  |
| Morris ...   | 1821 | Bates ...   | 1985 | } D     | 1 | 3  | 3  |
| Neate ...    | 1843 | Fairweather | 1980 |         |   | 3  | 3  |
| Perkins ...  | 2305 | Smith (mi.) | 1972 |         |   | 3  | 3  |
| Robinson ... | 1886 |             |      |         |   | 3  | 3  |
| Smith (ma.)  | 2680 | Robinson..  | 1886 |         |   | 3  | 3  |
| Smith (mi.)  | 1972 | Neate ...   | 1843 | } d     | 0 | 0  | 1  |
|              |      | Birch ...   | 1832 |         |   | 0  | 0  |
|              |      | Morris ...  | 1821 |         |   |    |    |
|              |      | Davis ...   | 1701 |         |   |    |    |
|              |      | Denton ...  | 1643 |         |   |    |    |

In the second column the names and marks are arranged in order of merit, and in the third column they are classified and given the corresponding "class-marks." The next column is the result of multiplying the class-marks by three, the number of periods per week in which the subject is studied. In the last column these marks are readjusted.

The above table contains all the writing necessary.

A few additional advantages should be mentioned:

(1) The numbers finally obtained are quite small. Even the total for all subjects is only about 200.

(2) The class-letters A, B, C, &c., are very useful for insertion in reports instead of the usual laboriously thought out euphemisms.

(3) These letters can be published where it is thought undesirable to divulge actual marks.

(4) If Red A's and Small d's are comparatively rare, they have a considerable moral effect.

(5) If it is thought undesirable to give marks in a certain set, class-letters for separate lessons, corresponding to those above, may be given, and the class-mark deduced from these. This, however, is not practicable if the class-letter obtained by an individual is likely to vary very much from lesson to lesson, as the average cannot easily be determined.

(6) Although time is not the most important consideration, it will be found that the time taken to deduce the marks from the order will be about a quarter of an hour.

**ALTERNATIVES TO PART OF THE ABOVE SCHEME.**—If the master prefers a more mathematical way of getting the final numbers, the following way is the fairest. Taking the same list of marks as an example, choose a mark above the top mark, say 2,750, such as would have been obtained by a still more gifted boy than Egerton, and some mark below the bottom mark, say 1,550, so low that even a more hopeless duffer than Denton would have failed to obtain less. The difference between this practical maximum and this practical minimum is now 1,200, and must be reduced to 15. In this case 1,550 would be subtracted from every mark and the results divided by 80. The marks thus obtained are very similar to those obtained by the class-mark method. The master can now obtain the class-letters, if he wants them, from the final marks by dividing them by 3, and putting "Red A" for 5, A for 4, B for 3, C for 2, D for 1, and "Small d" for 0, using his discretion when in doubt.

It may also be remarked that there are other ways of reducing a list of marks ranging from 1,550 to 2,750 to a list ranging from 0 to 15. Among these are the "Harrow mark-reducer," a graphic method depending on the principle of similar triangles with parallel bases, and, finally, a method in which the numbers 0 to 15 are written on a piece of elastic tape which is stretched over a list of the names, correctly spaced according to the differences between the marks. In this method the numbers 0 to 15 are pinned over 1,550 and 2,750, not over the actual bottom and top marks.

Whether the reduction is done according to the method first suggested (in the writer's opinion much the quickest) or by some more mechanical way, the results are practically identical.

**A NEW SCHEME FOR THE RECLASSIFICATION DIFFICULTY.**—The scheme described above was made for and is being used in a school where, except in a few forms, there is no reclassification for different subjects, so that this difficulty is not felt acutely there. The following scheme has not yet been tried, and so cannot be recommended with the same confidence.

The following points have been considered in its formation:

(1) Higher marks should be given to an aver-

age pupil in a higher set than to an average pupil in a lower set.

(2) The bottom of one set is not so good as the top of the set below, as a general rule. So the sets should overlap to a certain extent.

(3) The amount of overlap desirable can be roughly calculated. Take two boys about equal one term; one just gets a remove, but the other just fails. The latter probably remains at the top of the lower set, but the former rises, because he has better brains than the worse boys in his new set, and because a considerable amount of the work done will be revision of what he did in the set below. If, as seems probable, he rises about half-way up the set, to make it fair there should be an overlap of about half the set. According to the following scheme the overlap is two-fifths.

(4) The scheme is designed to give the master as little trouble as possible consistent with fairness.

The scheme suggested is as follows: *At any time during the term*—i.e., at his leisure—the Form-master works out a separate number for each pupil in his form, here called a bonus, which bonus will be added to his marks at the end of term, and help to determine his position. For each subject find out how many sets lower the pupil could be, multiply this by the number of periods per week devoted to the subject, and multiply this product by three. The separate subject-bonuses must then be added together. The same result is obtained by adding them before multiplication by three.

That this gives the correct overlap can be seen fairly easily. Take for example the case of a subject which is studied for five periods per week. Apart from the bonus, the marks range from 0 to 25. The bonuses are 0 for the lowest set, 15 ( $5 \times 3$ ) for the second lowest, 30, 45, &c., for the other sets. This makes the combined marks range as follows:

|                      |     |       |     |         |
|----------------------|-----|-------|-----|---------|
| Lowest set...        | ... | 0     | 25  |         |
| Set one above lowest | ... | 15-40 | ... | 15 more |
| " two "              | ... | 30-55 | ... | 30 "    |
| " three "            | ... | 45-70 | ... | 45 "    |

The calculation will be facilitated by combining the bonuses for different subjects beforehand, and not by adding them on to the marks for the separate subjects. A table should be made out like this:

|  |                                      |    |   |   |   |   |   |   |   |   |
|--|--------------------------------------|----|---|---|---|---|---|---|---|---|
| Name.....                                      | (in this case a fair mathematician). |    |   |   |   |   |   |   |   |   |
|  | Math. Scienc. French Hist. Geog.     |    |   |   |   |   |   |   |   |   |
| No. of periods per week                        | 5                                    | 3  | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| " sets above lowest                            | 4                                    | 3  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Product  | 20                                   | 12 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 39 multiplied by 3 gives the bonus, i.e., 117. |                                      |    |   |   |   |   |   |   |   |   |

It is assumed above that Latin, Greek, English, and Scripture are form-subjects which need not be included in the list.

Finally it is suggested that during some mathematical period each pupil should work out his own and his neighbour's bonus if it is considered desirable that the marking method should be known by the pupils.

## PRACTICAL GEOLOGY IN SECONDARY SCHOOLS.

By A. WILMORE, D.Sc.

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A BOARD of Education inspector of schools once remarked to the writer, "I am coming to the conclusion that it matters a good deal more *how* you teach than *what* you teach." I should not be prepared to go so far as that, but the method of teaching is certainly very important. We shall always have our differences of opinion as to the value of different studies in our schools; some will swear by literature and by history, others by the languages, and yet others by the practical sciences, and so on. It is, of course, possible in a well-balanced curriculum to include a reasonable amount of all these and yet to give a steady bias to whatever branch the teacher feels himself strong in or the circumstances of the pupil require. There is a feeling abroad that we run the risk of attempting too much, and I must disarm criticism at the outset by disclaiming any intention of introducing a new subject into the already well-filled curriculum. It is a method of teaching rather than a subject that is here dealt with; it is the "How" rather than the "What" of our teaching.

Many teachers will agree with me when I lay down as a first principle that our teaching must always be as practical as possible; that it should be concrete rather than abstract; that we should deal with *things* more than with abstractions; and that is my justification for pleading for practical "geology" in our secondary schools.

I will make two assumptions at the outset. First, that geography is not only taught, but that it is taught practically so far as the circumstances of the school will allow; secondly, that from one and a half to three hours a week are available. In my own school the lower forms have one and a half hours; the upper forms, in which the subject becomes a matriculation subject, have about three hours. Less time than this would make the effective teaching impossible; we feel that more than this would trespass too much on the other branches of study.

The intimate connection between geography and geology is now recognised fully. Geography has largely a geological basis. One has only to look at many of the modern text-books or class-books of the subject to recognise how completely this relation is now assumed. I may mention some four books which many teachers of geography know well. They are those of Dr. A. Morley Davies, Mr. Ellis W. Heaton, Mr. L'Estrange, and Prof. J. W. Gregory. All these bring in a good deal of pure geology.

Now, I have had a few years' experience of teaching on these lines, using one or more of the above books as text-books for pupils, and I have come to the conclusion that one must recognise the need for doing this geological basis work quite unreservedly. The excellent books of Mr. E. W. Heaton, in my opinion, treat this part of the sub-

ject somewhat too briefly, as though a bit of geology may be allowed on sufferance. I claim that such work is as important and as educational as any other phase of our geographical teaching.

Let us look for a moment at the necessity for a study of the geology of a region. Suppose we are studying the British Isles. Can we understand the difference, say, between the Pennine moorlands and the Vale of York, or the difference between the Lake District hills and the fertile Vale of Eden, without knowing something of the differences in the nature and structures of the rocks composing these different regions? Is it possible to understand the structure of the north-western Highlands of Scotland, and with that structure all that is included in the term scenery, and also the limited possibilities for agriculture, without some knowledge of crystalline schists and of the intricate folding the country has undergone? Surely the question only admits of one answer. I think it is as good study to handle some specimens of contorted mica-schist or augengneiss, as it is to draw climatic maps of the region, inserting on them the isotherms for January and July, and the shading or colour by which we show the variable but abundant rainfall. I submit that, during his secondary-school life of three, four, or more years, the pupil should have opportunity for doing both these things.

The red sandstone plain of the Midlands, with its three extensions, viz., the Severn Gate, the Cheshire Gate, and the Yorkshire Plain, is a well-defined physical region. Let the pupils handle specimens of red sandstone from, say, Liverpool and Runcorn, Nottingham, Worksop, and the Durham coast; add to these specimens from St. Bees and from Penrith, and the pupil has some knowledge of the unity of a well-marked physical region. (I have mentioned the specimens which my own teaching collection contains for this purpose. Other teachers, would, of course, accumulate collections from different localities. Idiosyncrasy as well as opportunity will count in the matter of a collection.)

In my own case the pupils also see specimens of soft green and red marl, with gypsum and rock-salt. There is here room for useful correlation with the chemistry teacher. It is, of course, good chemistry and physics to let the pupils prepare a reasonably pure specimen of common salt from the reddish-brown rock-salt of the school collection; and in this way the location of the salt industries of Cheshire and Worcestershire is fixed in the minds of the pupils much more firmly than it would be by merely reading or by having the facts pointed out from a map.

Another excellent illustration may be drawn from these same new red sandstones. Suppose your middle, or advanced, form to be studying the industries of the north-western region of England, the Lancashire and Cheshire plain, for example. You come to the fact of the location of the immense chemical industry on and near the Mersey, the Ship Canal, and the Weaver. Why? Let your pupils draw a geological sketch-map

which should show the Lancashire and Cheshire coalfield and its proximity to the salt deposits of Cheshire. The pupils at once see the relation of the raw materials, salt and coal. The great waterway lies, in a way, between them, and opens out into a busy sea. This map only requires a few minutes; but it is not only good geography, it is also good practical geology. You also recall their work in the chemical laboratory, and, if possible, you borrow some specimens; and you get from your pupils the relation of caustic soda, washing soda, soap, glass, &c., to the great parent chemical, common salt; and thus your geography links the chemistry on one hand to your geology on the other. Studies which deal with human activities in *things* must always touch the various compartments which we call the separate sciences.

Let us turn now to other phases of human activities which are studied in the geography lessons. I suppose that to study the distribution of our railways would be considered pure geography; so also would the distribution of our population. Now suppose a class has drawn a railway map of, *e.g.*, Great Britain, and has also shaded or coloured a population map. Let the class now draw a map of the coalfields of Great Britain, and compare these maps. All this is so obvious that I suppose every geography teacher does it; but it illustrates my point exactly. Here is the whole problem of the distribution of population epitomised, and the overwhelming importance of our coal supplies brought out; but the geological map (the map of the coalfields) is, of course, practical geology. I allow, and encourage, the pupils to handle and study freely specimens of coal from different districts and of different types. A "student's box" of samples of coal contains samples of house coal from the Lancashire and the Yorkshire coalfields, samples of cannel coal from Wigan and from Scotland, and samples of anthracite from South Wales. During some period of their school life the pupils make a study of this box, making notes of the differences in texture, hardness, and appearance which they themselves observe. It is, again, preference for the concrete over the abstract in our teaching; the use of *things* whenever possible.

Let me pass on to another illustration. How can a pupil understand the meaning of Jurassic escarpment, Cretaceous escarpment, &c., if he has no opportunity of studying practically the rocks of which these escarpments are composed? Every modern book emphasises the grained structure of England and shows the well-known bands running from north-east to south-west. First of all, I let my pupils have some time with the rocks which I have collected to illustrate these secondary provinces. We have oolitic limestone from Scarborough and from Bath and Portland, for example; shelly limestones from Aylesbury, Roade, and Filey; ironstones from Northamptonshire, Lincolnshire, and Cleveland; and Liassic shales and limestones from Whitby and from Leicestershire. These are handled, tested with a knife, with acid, and in any other way which the

pupil may suggest (a good deal of freedom is allowed), and good notes are required from the pupil. Then the position of this Jurassic escarpment is inserted on the map, copying from the geological maps in the atlases, and comparing with the excellent 2s. coloured map now issued by the Geological Survey.

The same procedure is followed with the chalk and other Cretaceous rocks. Our collection happens to include the following: chalk from Flamborough, from North Norfolk, Totternhoe, Tring, Croydon, and Sevenoaks (specimens collected by the writer on various cycling and other tours), as well as gault and greensand from such places as Leighton Buzzard, Redhill (Surrey), &c. These are studied in the same way, and then the Cretaceous escarpments are inserted on the map.

Now the pupil is prepared to read of the iron industries of Cleveland, of Scunthorpe, in Lincolnshire, of Wellingborough and Kettering district, and of the sheep-farming of the Upper Oolite regions, such as the Byfield Downs; of the rich Vale of Aylesbury, and of the fertile phosphatic soils of the "Greensands," and of the dry, heathy downs of the Chilterns, and of the ridges overlooking the Weald of Surrey, Kent, and Sussex. With more advanced classes one may introduce sections across England from N.W. to S.E., say from Leicester to Dover, which shall bring out the mutual relations of these rocks and of the Tertiaries of the London basin, as well as the general structure of the country.

The study of the rocks themselves is, of course, practical geology, but it is difficult to see how it can be reckoned, if well done, as any other than good geography. Personally, I believe in concentric teaching in geography; I do not see any other way with a subject of such never-ending possibilities. Whilst I should introduce the lower forms to the fact of these escarpments, I should retain general considerations about the recession of these escarpments and their dissection by rivers and by "wind-gaps" until the later stages of a pupil's study. Upper classes can well understand such studies, for example, as the explanation of the routes followed by our great trunk railways from the London basin to the Midlands. I think it is allowable, with an advanced class, to go so far as to undertake the study of oolitic structure in an elementary way, and I have found pupils to be greatly interested in a thin section of an oolitic rock as seen under the microscope.

Of course, all these are merely examples. Much of the study mentioned is clearly pure geology, but it is obviously difficult to say where geology ends and geography begins in much of this work. My plea is that the practical geology is not only allowable, but it is desirable, and I think quite necessary. Whilst we are about it we should not do it half-heartedly, but make it a thoroughly good study so far as we can.

I have often discussed this subject with earnest teachers, and the chief objections I have met with are the following: First, the difficulty of obtaining specimens; and, secondly, the lack of opportunity



of doing good outdoor work. These are real difficulties. As regards the first, I have already remarked in another article<sup>1</sup> that good collections may be bought, at a reasonable cost; but I believe in home-made collections, because you thus get specimens in which there is the element of personal interest, and you can explain much more effectively what you have yourself collected. Of course, there are the obvious limitations of distance. It is not easy for a teacher in Birmingham to get specimens of the Great Whinsill of Durham; nor is it easy for the Scarborough teacher to obtain the gabbros and serpentines of the Lizard. But it is surprising what opportunities do turn up. I am writing this article in Hertfordshire, and not in my own rich district; and here I can, of course, obtain specimens of chalk, of Hertfordshire "pudding-stone," and of various Tertiary deposits. But I have noticed while out for walks that specimens of Charnwood Forest granite (probably hornblende granite from Markfield) and quartzite from Nuneaton are being used as road metal.

I have accumulated most of my own teaching collection personally, taking, of course, obvious precautions as to authenticity of specimens; but I have also been indebted to many kind friends who have at once sent me specimens on request. In this way I have added to my school collection many rocks (and minerals) which otherwise would have been missing. Teachers can readily exchange specimens with each other, and the man who can obtain good chalk specimens for the mere picking up may well interchange with the Devonshire teacher who can obtain excellent specimens of granite or of limestone. It is all a matter of time and of patience, but there is great fun in the process.

The second difficulty is one of degree. Every district has its opportunity of some kind. Those of us who live in the Pennines, with their infinite variety of structure and great variety of rocks, have no difficulty; those who teach in big towns and in districts with few exposures are, of course, not so fortunate. There are, of course, the museums; but whilst it is good to be able to see such variety, it is not good to be restricted to merely looking. There are also the wonderful stones used in the big buildings, granite from Shap and from Aberdeen, granite from Dartmoor, "marble" from the Ardennes, rocks from the Christiania region, and so on in great variety. Each teacher will make his own opportunity.

Finally, it is good to do some work of this kind for its own sake. Pupils are being trained to observe, to reason, to compare, to classify, and to remember. If a pupil studies a sample of pumice from Sicily and compares it with a stony lava from Wales, and with crystalline granite, he has had a good exercise in the use of some of his most important faculties. If it is good for him to handle things and to learn to describe accu-

rately, then he is attempting a good exercise; if it is well that our pupils should learn to classify and to discriminate, then there is an obvious recommendation for practical geology; it is training for hand, for eye, and for the intellectual faculties. Dare I add that it may have an economic value to some of the pupils in their after-life?

## TRADE SCHOOLS FOR GIRLS.

By C. T. MILLIS, M.I.Mech.E.

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ONE of the most important developments in educational work in recent years with regard to the question of girls' training is that of the trade schools in London. The object of the schools is to promote industrial efficiency.

The pupils of the trade schools for girls receive a thorough preliminary training in a skilled trade under teachers who have had considerable experience in good workrooms. Two-thirds of the school time, amounting to about twenty hours per week, is devoted to the trade subject. The general education and artistic training are co-ordinated with the trade instruction. Attention is also paid to the physical development of the pupils. The instruction, which covers a period of two years, is modelled more or less on that given in the French schools, and is highly specialised trade instruction. The trades have been carefully selected as offering every prospect of a good livelihood to capable workers, special care being taken to ensure that the pupils shall, so far as possible, in the time at their disposal, receive an all-round training and acquire some knowledge of every branch of their trade, so that they may in after-life be able to adapt themselves to the varied requirements of the different firms.

Girls of average ability who have taken full advantage of the training should, after two or three years of workshop experience, become skilled, intelligent workers, for whom there is always a demand, and should rise to responsible positions.

A brief outline of the course of instruction may be given here:

### ENGLISH.

- (1) Oral and written trade compositions.
- (2) English industrial history and political history as affecting working classes.
- (3) English literature.
- (4) Correspondence.
- (5) Health talks (physiology and hygiene).
- (6) Visits to buildings of historic interest and to picture galleries.
- (7) Debates on social and industrial questions.
- (8) Summary of the news of the week in each class.

### MATHEMATICS.

*Geometry.*—Plane geometry; solid geometry (cylinder, cone, and frustum of cone); mensuration; application to patterns and concrete objects.

*Arithmetic.*—Chiefly commercial; metric system.

<sup>1</sup> THE SCHOOL WORLD, November, 1910.

## ART WORK.

## (a) For Dressmaking Students.

**Form and Arrangement of Line.**—Application of cone, cylinder, and sphere; human figure.

**Colour.**—Scale of colour; study of museum examples.

**Design.**—Dress decoration, drapery, textures; copying from fashion plates; study of historical examples.

**Drawing to Scale.**

**Embroidery.**—Application of various stitches; *appliqué* frame and ribbon work; art work and drawing.

## (b) For Upholstery Students.

**Form.**—Geometrical exercises applied to pattern; drawing to scale; sketching of drapery, helmets, &c.

**Colour.**—Scale of colour; harmony and contrast; matching of colours.

**Design.**—Use of geometrical construction; adaptation of nature forms; decorative patterns.

## ELEMENTARY SCIENCE AS APPLIED TO LAUNDRYWORK.

Properties of water; action of acids and alkalis; soft and hard water; dyes; bleaching agents, &c.

## NEEDLEWORK FOR PUPILS IN TRADE SCHOOL OF LAUNDRYWORK.

Mending and darning; drafting and making of simple garments.

The syllabuses of the trade work in each section of the school are not given because they would be misleading unless set out very fully in all details. Generally the courses followed are those approved by the advisory committees.

The girls who attend the schools come mainly from elementary schools; some hold London County Council scholarships, which provide free tuition and maintenance grant of £8 in the first year and £12 in the second year. Some few have free places, some enter as paying pupils. The proportion of fee-paying pupils is steadily increasing, and now equals about one-third of the whole. The fee charged is 10s. a term. The girls generally enter the schools between the ages of fourteen and sixteen. Attached to each school are advisory committees, on which are trade experts who assist in the selection of the trade teachers, and render valuable services by visiting the school and examining the work done by the pupils, as well as by helping the girls to find employment at the end of their school course. This supervision of work by the advisory committees is an important factor in enabling a high standard of efficiency to be reached.

The first trade school was established in 1904 at the Borough Polytechnic Institute, where a trade class in waistcoat-making was opened. In aid of this experimental class the Governors received a grant from the London County Council, which body took up the subject in a very public-spirited manner, with the result that in 1905 trade classes in dressmaking and upholstery were added to the waistcoat-making class at the Borough Polytechnic; trade classes in dressmaking were opened at the L.C.C. Paddington Technical Institute and the Woolwich Polytechnic, and in upholstery and in the designing and making of costumes for the wholesale trade at the Shoreditch Technical Institute. The work of the L.C.C. Bloomsbury Trade

School opened in temporary premises in 1907 with trade classes in dressmaking, ladies' tailoring, and corset-making, and in the following year classes in photography and millinery were added. In 1908 trade classes in ladies' tailoring and laundry-work were added at the Borough Polytechnic, and the L.C.C. Hammersmith Trade School for Girls was established in temporary premises the same year with trade classes in dressmaking, millinery, and upholstery.

The London County Council Education Committee, being convinced of the success and value of these schools, has recently decided to extend and develop their work. This will be accomplished by providing accommodation for an increased number of girls in some of the trades now taught, and by the opening of trade classes in cookery and other women's trades. The first of these developments will begin at the Borough Polytechnic by the opening of a trade class for training young girls to become professional cooks; the dressmaking and laundry classes at the Borough will also be extended. In 1912, 1913, and 1914 further additions and developments of the work will take place, and according to the present proposals there will be additional accommodation provided for 134 girls at the Borough Polytechnic, for 144 girls at Bloomsbury, and for 102 girls at Hammersmith; and 183 additional trade scholarships will be awarded.

The success of the schools is proved by the continuous increase in the demand for places in them. The number of pupils has increased from 361 in 1908 to 615 in 1910; 759 candidates competed for the scholarships in 1910, compared with 262 in 1906; and the number of fee-paying pupils admitted rose from 28 in 1907 to 117 in 1910. The demand for admission from fee-paying pupils is in excess of the present accommodation. The increased demand for places is due to the appreciation with which the schools are regarded by the parents, and to the co-operation of the head-mistress in advising suitable girls to enter for scholarships or to become fee-paying pupils. Other important factors in the success of the schools has been the recognition from the first of the difference between actual trade training and domestic economy school training in the special trade subjects, and the employment of teachers who have had good trade experience. This is the place to point out that any attempt on the part of the trade teachers to approximate their syllabuses and methods in subjects such as laundrywork, dressmaking, upholstery, cookery, &c., to those employed in the kindred subjects in the domestic economy school would result in failure, and, *vice versa*, that any attempt on the part of domestic economy school teachers to approximate their work to that of the trade school would be equally wrong, and would defeat the objects of their schools.

The soundness of the work and the admirable way in which the schools have been organised to meet the requirements of the pupils and of employers have won the confidence of the latter, and

no difficulty has been found in placing the girls at good wages.

Such success, however, would not have been possible without the sympathy and very liberal support of the London County Council Education Committee, which provides a large number of scholarships, and supplies the whole of the funds for carrying out the work in well-equipped schools, in which there are only a small number of students in each class.

Much credit is due to the efforts of the lady superintendents, to Miss Durham, the Council's Inspector of Technical Classes, and last but not least to Miss Adler, L.C.C., for her indefatigable energy and interest in the work.

The movement has been valuable in diverting into trades a number of girls who might have drifted into the overcrowded clerical occupations, and are better fitted in many ways to become first-class workers in trades which need properly trained and skilled workers. By sending into the trades well-trained girls, the schools will do much to enhance the dignity of manual work and raise the status of the workers. This valuable and efficient training from the moral and physical, as well as the wage-earning point of view, can hardly be too highly estimated as a national gain, and the London County Council deserves the thanks, not only of the citizens of London, but of the whole country, for the example it has set in establishing such schools. The influence on the girls, as the result of the attention given to their moral, physical, and educational training, in addition to the trade training, is most marked, and it is confidently believed that the girls will become, not only better workers, but better citizens.

In conclusion, the advantages of the training compared to that of ordinary apprenticeship may be briefly pointed out. Under this system girls of the age of fourteen are not subjected to the unsuitably long hours of the workroom, and usually work under better hygienic conditions. The general education of the girls is continued, and they are still under authority and school discipline at the most impressionable age; more than one branch of the trade is taught, and a good, all-round training in it is given, together with systematised instruction in colour and form.

#### LONDON TRADE SCHOOLS FOR BOYS.<sup>1</sup>

THE London Trade schools vary considerably in their objective and in the character of the work that is done.

The schools for boys are of two kinds: (a) preparatory schools for allied groups of trades—*e.g.*, woodworking, engineering, building trade, book production; and (b) those training for particular trades—*e.g.*, silversmithing, tailoring, cooks (men), and bakery.

The oldest of the boys' schools is Shoreditch (furniture trades), which, in certain important

respects, stands somewhat by itself. The workshop instruction, including workshop drawing, occupies, roughly, one-third, one-half, and two-thirds of the school time in the first, second, and third years of the course, respectively. Of the remaining time, one-half is devoted to instruction in science, mathematics, and art, and one-half to English. In the engineering schools (Poplar, Paddington, and Hackney) less time is devoted to workshop instruction, about one-quarter of the whole time being spent in the workshops; about one-half to instruction in related subjects, such as drawing, mechanics, and mathematics, and less than one-sixth to English. In the School of Building (Brixton) boys taking the trade course, as distinct from the professional course, spend rather more time in the workshop, but in no case does the time spent in the workshop exceed half the school time.

The School of Bakery (the Borough Polytechnic) is in the main attended by the sons of master bakers.

The Beaufoy Institute differs from the others in giving rather more time to English and general subjects and rather less to science, mathematics, and drawing. The modification is justifiable as the course of instruction is less specialised, for the boys are younger than in the other schools. In the Schools of Artistic Crafts (Central Schools of Arts and Crafts) between nine and ten hours a week are devoted to drawing and modelling.

The last of the schools to be established is a school for boy cooks. The work of this school is guided by an advisory committee of expert chefs. The object of the school is to instruct youths who desire to become professional cooks and to train them by scientific methods in all branches pertaining to cookery and the making of pastry and confectionery. The kitchen is fitted up like the kitchen of a good hotel. The course of instruction lasts for three years.

The object of all the schools is to prepare boys to become intelligent workmen, with a fair chance of occupying later the better paid positions. The function of the schools is regarded as doing the preparatory work that there is no time to do properly under modern workshop conditions and to send into the shops youths who have been taught to use both their hands and their brains and who will be in a position to make the utmost use of that experience which the workshop alone can give. The artistic craft schools and the school for boy cooks (Westminster Technical Institute) stand in a somewhat different position. In these occupations craftsmanship counts for more than it does in heavier trades, and a case can be made out for the devotion of rather more time to workshop practice.

The whole school atmosphere should be creative of a pride in workmanship and of faith in the power and value of the craftsman.

As regards the type of general education given, there is no doubt that it should, broadly speaking, spring out of and be related to the trade instruction. Something in this respect has been done;

<sup>1</sup> From a paper on "Trade Schools" read at the Imperial Education Conference on April 28th, 1911, by R. Blair, M.A., B.Sc., Education Officer, London County Council.

there is still much to do. The general education should be of such a character as to induce the reading sense, so that students may themselves be found independently seeking for information related to their crafts or trades. It should also seek to develop, at all events in the better students, the critical attitude not only towards quality of workmanship, but also towards the general life and thought of the craft or trade, and especially towards the industrial and social conditions under which the craftsmen live and work. Art is in one way easily related. The silversmithing boy or the young architect will draw objects or examples of the goldsmiths' or silversmiths' or architects' work. But the relation must be carried further: whatever the object—*e.g.*, a chalice—its purpose should be described and some time devoted (with examples or sketches) to showing how its fashion has followed the art of the times, and so on.

Mathematics is not treated too ambitiously. A few fundamental principles well driven home are considered worth a hundred tricks; and an armful of note-books filled with flighty or involved exercises the application of which is remotely seen or remotely doubtful is generally regarded as representing but so much contribution to the intellectual rubbish heap. The science master who cannot show at once how much his curriculum differs, and why it differs, from that he would propose in an ordinary higher primary or lower secondary school is regarded as misplaced.

The work in history and literature should give the best of the students the historical sense which will enable them to appreciate the part their craft or industry is playing in the development of civilisation, and should induce them to explore the masterpieces of history and literature where the great craftsmen have so often found inspiration for their work.

Teachers of sufficient interest, of sufficient originality, of sufficient persistence, and sufficiently capable of applying the ordinary subjects of the curricula to each new trade included in a school's objective are by no means readily found; and this difficulty of finding the right kind of teacher is an additional reason for the slow development of the system.

#### SOME ASPECTS OF SECONDARY EDUCATION IN ENGLAND.

THE "Report of the Board of Education for the year 1909-1910"<sup>1</sup> was published too late for us to deal with it in our issue for May; but, in view of the abundance of valuable information it contains as to the progress made in the various grades of education in this country, we take this opportunity of commending it to the attention of our readers.

In the report for the preceding year the Board of Education dealt with secondary education very

fully, and in the present report less prominence is given to this department of the Board's work. Among matters of special interest referred to here, the subject of co-education in secondary schools may be mentioned. Of the 886 schools in England recognised as efficient during the year 1908-9, there were 149 in which boys and girls were taught together either in all or in some of the forms of the school. In 135 of these schools the boys and girls were taught together throughout the school; in the other 14 the boys and girls were taught together in some forms and separately in others. Of the 928 schools in England recognised as efficient during 1909-10, there were 150 in which the boys and girls were taught together throughout the school, and 23 in which they were taught together in some forms and separately in others. As to whether these co-educational schools will be permanent is a question which the report says cannot yet be answered. Probably, even in large towns, there are few of such schools in which the purely educational question has yet been distinguished with sufficient clearness from that of financial expediency; and as the report points out, until the recognition of the difference of these two questions has been effected, and has thus rendered possible, and been followed by, more scientific observation of the educational question, that question must remain open.

Another matter of special interest is the observation visits by secondary-school teachers inaugurated by the Board. During the year under review five teachers, three men and two women, were selected by the Board for the benefits of this scheme. The subjects taught by them in their own schools were respectively modern languages, classics, geography, science, and history; and each paid an observation visit of a fortnight's duration to a school specially selected on account of the merit of its teaching in that particular subject. The reports submitted to the Board by these teachers suggest that the teachers have profited by the opportunities afforded them, and it is clear that their visits have at any rate caused them to adopt a more critical attitude towards their own teaching, and have introduced them not only to new methods of teaching, but also to sources of fresh and stimulating information.

As regards educational experiments in secondary schools, towards which in special circumstances the Board makes grants, the report points out that several applications for the grant have been received. Some of these applications have not been entertained. Applications were made for the grant in respect of special teaching in music and geography; of a specialised engineering course; of the dramatisation of English literature and history; of holiday courses in France and Germany; and of a specialised curriculum for backward girls. The Board has not seen its way to award the grant in these cases, since the work did not appear either to be experimental within the meaning of the regulations, or not sufficiently important or informing to

<sup>1</sup> Cd. 5616. Wyman & Sons, Ltd. Price 8d.

deserve the recognition implied by special pecuniary aid. The Board, on the contrary, has recently decided to pay a special grant to the Knaresborough Grammar School, which has framed a curriculum specially planned to meet the needs of boys and girls destined for rural occupations.

The teaching of science in secondary schools is discussed at much length in the report. The changes in the regulations respecting the teaching of science since the passing of the Education Act of 1902 are enumerated at length, and the profound modifications effected are described. In practically all boys' schools the subjects studied nowadays are chemistry and physics, while in the majority of girls' schools botany is the main science subject, a minority taking either physics or more often chemistry. It is usual in both boys' and girls' schools to find the study of one or other of these subjects preceded by a course of "experimental science." Hygiene, taught as a science subject, finds a place in the courses of a relatively small number of girls' schools. Hygiene is, as a rule, justified primarily on ethical grounds, i.e., with a view to the inculcation of hygienic habits. The number of schools in which other subjects of science are taught is exceedingly small.

It is satisfactory to find the report insisting that whatever the circumstances of the school, no treatment of science can ever be satisfactory which leaves wholly out of consideration the relations of science to other subjects of the curriculum. The adoption of the same reclassification of the pupils for both mathematics and science is a plan for which there is very much to be said; but in the smaller schools there are practical difficulties in the way which account for the fact that this expedient is rarely adopted. It is very desirable, the report points out, that mensuration, which in many schools is still included in the science course, should be transferred to its proper place in connection with the teaching of arithmetic. If this were done, it would be possible, and often advantageous, to amplify the course in practical physics by the introduction of experimental work in elementary mechanics.

The detailed syllabuses in particular subjects of science show in many cases curious if not inexplicable limitations. There is a tendency to refrain from all mention of scientific matters of common interest, because they do not admit in school work of exhaustive treatment. It is important that every opportunity should be taken of illustrating facts and principles learnt in the laboratory by frequent reference to everyday phenomena. It is probably neither possible nor desirable to add to the number of science subjects studied in school, and there is the more reason why pupils should be encouraged to interest themselves in some aspects of Nature other than those to which attention is given in school hours. For this the "school scientific society" may offer the needed opportunity of providing for the older pupils the occasion of taking up subjects for them-

selves and sharing their interests with their fellows.

The discussion of the relation between theoretical to practical teaching in science will be followed with interest by most teachers, and we commend to them particularly the paragraphs on the relative importance of lectures, demonstrations, class discussions, and the written accounts of the experiments performed. Speaking of the pupil's record of work done, the report says the idea that there are two standards of composition, one which is appropriate for the English lesson, and another which is good enough for the science laboratory, has not yet been eradicated. It admits, however, that to expect exactness of thought and accuracy of expression from younger pupils is to expect the ripe fruits of scientific education from those who have but lately begun to enjoy its benefits. If these logical errors never occurred, there would be no need to spend time over teaching "scientific method." It is precisely by seizing the opportunities which such mistakes and omissions afford that the teacher can convey to the pupil valuable lessons in the teaching of science.

#### PRACTICAL EDUCATION IN ELEMENTARY SCHOOLS.<sup>1</sup>

WE have established at last the firm basis for our claim that manipulative exercises shall find a place in our elementary-school curriculum. It is a threefold basis, the foundations of which have been well and truly laid after the researches of many an earnest student into studies which can be characterised in terms of suitable gravity, studies historical, studies sociological, and studies psycho-physiological. Henceforward, when we are preaching the doctrine of practical education and are met by the exasperating question "why" we need not stammer or stutter, but may composedly answer: "For six reasons—"

"(i) To develop certain centres of the brain.

"(ii) To develop manual dexterity at the age when it must be developed if it is to reach the pitch it should in maturer years.

"(iii) To afford scope for the constructive faculties, or, if the term 'faculties' be objected to, to afford scope for self-expression.

"(iv) To make school subjects more real to the child; in other words, to bring into relation with every possible subject in the curriculum the third dimension.

"(v) To keep the child in touch with its environment, with what life means to it, not to some imaginary child brought up in an atmosphere of late-Victorian culture.

"(vi) To give it something to do which it recognises as definitely useful, and thereby to implant the germ of the idea of usefulness, the fruit

<sup>1</sup> From a paper read at the Imperial Education Conference on April 26th, 1911, by James G. Legge, B.A. (Oxon.), Director of Education, City of Liverpool Education Committee.

of which is social service, the very condition of the existence of civilised society."

If we have all these purposes in view when we call for the introduction of manual work, it is vain to seek for one scheme, one kind of material, one tool or set of tools which will accomplish all. True, we cannot devise any scheme which will not satisfy at least three requirements, for the first two, the development of brain centres and of manual dexterity, will be bound up with every imaginable scheme. But the common-sense conclusions seem to be these—

(a) We need several sets of exercises in different materials, each devised to carry out one main purpose in chief.

(b) The main purposes on which stress will be laid will differ (i) in different schools, (ii) at different ages, and, if the school be large enough, (iii) with different children of the same age.

(c) The time to be devoted to manual work will differ at different ages and in different schools, the limit of the manual side in any case being the point at which it ceases to develop the all-round, intellectual as well as physical, development of the child.

These conclusions, it may be submitted, secure two essentials: they afford infinite scope for the teacher, if he will only avail himself of the liberty offered him, and, properly applied, safeguard the individuality of the child.

Taken together they represent the great goal of education, the all-round development of the child, the development of the child's individual self, body, brain, and soul, to such a manhood as may be expected under the conditions of its being to be appropriate to it. But I confess that the six reasons seem to me to fall into two groups, of which one is higher than the other. Three reasons fall into the first group, namely, (1) the encouragement of self-expression on the part of the child, (2) the keeping of the child in touch with its environment, with what life means to it, and (3) the development of the idea of usefulness. Far below these are to be rated the other three, namely, the cult of the intellectual powers, and of manual dexterity, and improvement in methods of teaching. The former are the weightier matters of the law, the latter but the tithe of mint, anise, and cummin.

#### PERSONAL PARAGRAPHS.

**D**R. PETER GILES is a well-known and popular figure in Cambridge, and both college and university will be gratified at his elevation to the Mastership of Emmanuel College, of which hitherto he has been fellow and classical lecturer. I expect that he first came above the horizon to many connected with education (who were not also connected with Cambridge) when he published his "Short Manual of Comparative Philology" in 1895. Less time had by then become available for the study of philology in secondary schools, and it was imperative to use the little that could be afforded to

good purpose. Peile's philology was fast becoming old-fashioned: where was guidance to be sought? This question was answered by Dr. Giles's book, which has since held the somewhat restricted field.

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He was educated at Aberdeen University, and at Gonville and Caius as a scholar, but he also had experience of the universities of Freiburg and Leipzig. Among his Cambridge honours are first classes in Parts I. and II. of the Classical Tripos, a second class in the Historical Tripos (1885), the Browne medal for Greek epigram (1884), the Lightfoot History Scholarship, and the Whewell International Law Scholarship (1885). He was a fellow of Gonville and Caius from 1887 to 1890, and then became fellow and classical lecturer of Emmanuel. It was in 1891 that he succeeded Dr. Peile as university reader in comparative philology. He has published numerous papers in various reviews, and is at present an editor of the new series of Cambridge manuals of Science and Literature. He married, in 1893, a daughter of Mr. T. W. Dunn, headmaster of Bath College, and for many years a conspicuous figure at the Headmasters' Conference.

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PROF. WALTER RIPPMMANN is finding one outlet for his manifold energies in the simplified spelling of English. With Mr. William Archer he has drawn up a scheme which, after another stage of discussion, will be duly published, and I personally hope widely accepted among teachers. It is much in favour of the scheme that it does not require a single sign that is not used in the present spelling, and not a single diacritic. I have examined the proposals, but am not allowed as yet to divulge them. It seems to me that, on a rough computation, if this scheme were carried out, a year or a year and a half might be saved by the average child in the effort of learning to spell. The names of many to whom a scholarly use of the English language is dear will be found among those who favour simplification of spelling, and this fact should secure for Prof. Rippmann's work a fair consideration.

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AN expert geologist has died at the age of ninety-one in the person of Mr. Thomas Rupert Jones, formerly professor of geology at the Staff College, Sandhurst. His early education was received at Taunton. It was in 1850 that he was appointed assistant-secretary to the Geological Society of London. In 1858 he became lecturer on geology at the Royal Military College, Sandhurst, and in 1862 professor. He held his professorship at the Staff College until 1880. He did a vast amount of examining in his subject for the London University, Victoria University, New Zealand University, College of Preceptors, Civil Service Commission, the Department of Science and Art, and Royal College of Science. He had served as president of the Geologists' Association (1879-1881), and was a fellow of the Royal Society and of the Geological Society

of London. The latter society awarded him its Lyell Medal in 1890. He was the author of many papers and essays.

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THE REV. FRANK FORTESCUE CORNISH, who had retired from his chief inspectorship of schools in 1903, died recently at the age of seventy-three. His father, Dr. Sidney Cornish, was for many years headmaster of the King's School, Ottery St. Mary. The son matriculated at Exeter College, Oxford, where he was a scholar, and took a first class in Moderations (1858) and a second in Lit. Hum. (1861). He served the curacies of St. Mark, Victoria Park, and of Greenhill, Harrow. He was appointed an inspector of schools in 1868, and was placed in charge of the Lincoln district. He went to Salford in 1876. He was chief inspector for the north-western district from 1892 to 1903.

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THE REV. PHILIP REGINALD EGERTON, late fellow of New College, Oxford, will be remembered as the founder of All Saints' School, Bloxham, near Banbury. A scholar of New College, he became a fellow, and took degrees B.C.L. (1857) and M.A. (1885). In 1859 he was licensed to the curacy of Deddington, and in 1860 founded All Saints' School, of which he was principal until 1887. After that date he was Warden until his retirement in 1896.

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THE career of the late Rev. Joseph Foxley impinges on education chiefly in respect of his having held an assistant-mastership at St. Peter's, York. He was a scholar of St. John's, Cambridge, and won the Browne medal for Greek epigram. In 1854 he was a Senior Optime and bracketed tenth Classic. The Members' Prize (1853) and the Burney Prize (1854) are also to be credited to him. In 1855 he was elected to a fellowship at St. John's College, and was ordained deacon in the diocese of York, and priest in 1856. After his work as assistant-master at St. Peter's School, he took up a clerical secretaryship to the Archbishop (Dr. Musgrave). He was appointed Hulsean lecturer in 1881. In 1886 he was nominated by the Crown to the benefice of Carlton-in-Lindrick.

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I NOTE that Prof. A. W. Mair, whose work on Hesiod (Oxford Translations) I recently read with much pleasure, has received the degree of D.Litt. for his thesis.

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MISS HARRIET FINLAY-JOHNSON, to whose work at Sompting School, Sussex, I referred some two years ago, has since been married, given up teaching, and written a book on "The Dramatic Method of Teaching" (Nisbet). I must not here attempt to gauge its merits, but it is obviously written under the deeply planted conviction that a great deal may be done to make transient childhood happy. The author pays a tribute of gratitude to the late Mr. Burrows, who as chief

inspector encouraged the imaginative work of the Sompting School.

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PROF. E. V. ARNOLD, of Bangor, is not afraid of spade work in his Latin garden. His "Basis Latina" may fairly count as such: and now he proposes to hold a summer school in Latin at Bangor from August 28th to September 9th. It is hoped that this effort may tend to more uniform and efficient teaching of Latin in secondary schools. Good luck to the venture!

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IN Sir Nathan Bodington, the University of Leeds loses a father as well as a vice-chancellor. He was educated at King Edward's School, Birmingham, and at Wadham College, Oxford (as a scholar). After taking (in 1871) a first class in Lit. Hum., he became an assistant-master at Manchester Grammar School and afterwards at Westminster School, and then was elected fellow and tutor of Lincoln College, Oxford, and lecturer at Oriel. In 1881 he was appointed the first professor of classics at Mason College, Birmingham, but after only one session was appointed principal and professor of Greek at the Yorkshire College, Leeds. The chair of Greek he held until 1904, when he became vice-chancellor of the newly established University of Leeds. His outstanding work was this building up of the Yorkshire College into the Leeds University and his subsequent devoted service to the University, service which was fittingly rewarded by King Edward with a knighthood in 1908. The foundation of the Roman Antiquities Committee of Yorkshire was due mainly to his initiative.

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THE REV. HUGH WILLIAMS, D.D., who died recently, was professor of Church history at Bala Theological College, where he received his early education. He proceeded to University College, London, and was formerly professor of Greek at Bala. To his attainments he added proficiency as a Celtic scholar. He was a member of the council of the North Wales College, Bangor.

ONLOOKER.

## CONTINUATION SCHOOLS.<sup>1</sup>

By GRAHAM BALFOUR, M.A.

Director of Education for Staffordshire.

TO-DAY, in England, all who think much about the subject are agreed that education ought not to cease at the age of thirteen or fourteen when children leave the elementary school. We desire that it should be continued for a further period, which should be limited only by reference to capacity and an ardour to learn.

The authorities are in most cases ready and willing to provide further education. When they address themselves to their task, five questions arise:

- A. Who ought to go to continuation schools?
- B. Where should the schools be held?
- C. What should be taught in them?
- D. When should the instruction be given?
- E. Who are to be the teachers?

<sup>1</sup> From a paper read at the Imperial Education Conference on April 28th 1911.



A.—Who are to go? The simplest and most complete answer is, Everybody on leaving an elementary school. Those who leave secondary or private schools at too early an age should also be required to attend unless they can satisfy a reasonable educational test.

At the present time, however, we are very far from realising this ideal. The latest figures of the Board of Education show that in 1909 there were in England on the registers of the public elementary schools nearly 3,000,000 children of the age of seven and over, but under the age of twelve, that is, about 600,000 in each year. The same returns show that the number of young persons aged fourteen, fifteen, and sixteen attending "evening and similar schools and classes," and art schools and classes, at any time during the session averaged not quite 100,000 in each year, so that, even had their attendance been satisfactory, only about one-sixth of the children who had been in elementary schools (making no allowance for students from other sources) were continuing their education in any State-aided classes. Even for voluntary attendance this is seriously inadequate. There is, however, we must not forget, a good side even to this revelation. Those students were there who wanted to be there. They were there because of a zeal for knowledge, or because of ambition, or from a sense of duty, and because they were amenable to control or to good advice. A large proportion of them were keen students, and were a stimulus to one another and not a dead weight. The relatively small numbers again create classes of a manageable size. At present it is a rare thing in my experience for an evening class for any length of time to number more than thirty-five pupils at the most, and more often the numbers fall far below these figures, while classes of between fifty and sixty still prevail in our elementary schools. If continuation schools are ever rendered compulsory, it is to be hoped that due provision will be made to retain for them this advantage, for on it in great measure their distinctive character must depend. On the other hand, they still too frequently fall below any useful limit, and the general practice is to discontinue those where the average attendance does not number half a dozen.

B.—Where the school should be held is a question that mostly solves itself. For younger pupils the elementary-school buildings are obviously the right place, and where a technical school exists, transference to its classes should be regarded as a promotion to be earned only by regular attendance for two sessions or by special qualification. The chief difficulty is that too many of our elementary-school premises still lack means of teaching practical subjects such as woodwork or cookery. Special provisions, perhaps in the institutes themselves, might (where the numbers admit) be offered as a temporary expedient to those older pupils who wish to recover their half-lost education in order to profit by more advanced training, and yet are reluctant to sit at the same desk with children little more than half their age.

C.—What is to be taught? The answer, I think, should be, We must teach the pupils what they want to learn, what they are really interested in learning, and we must utilise the fact that their presence shows that they do want to learn something to induce them to take it in a really educational manner. A boy comes to learn shorthand; we should insist on joining to it such English classes as will render his shorthand writing intelligent and capable. Arithmetic, again, is a subject which, even as practical arithmetic, it is exceedingly difficult to get boys to take unless it is included in a course, and yet there are few subjects of so much use to them, at any rate in an industrial neighbourhood.

I think that we have not yet had enough clear thinking as to the purposes of this continued education. We do not yet generally see that we have to minister to the needs of two classes, between whom it is quite true that no sharp line can be drawn. Universally, of course, we want to make all students educated members of the State, fit to form a judgment on public affairs, and to conduct their lives wisely and well. But after that our special aim is to help them in their daily employments, to make them more accurate, more far-seeing, more full of resource, more capable of applying scientific principles and knowledge to their work. But what of the mechanical tenders of machines, of those whose lifelong task it is to perform some one operation for which no machine except a human being has yet been invented? What about the hewers of wood and drawers of water, whose sole occupation is to transfer large quantities of heavy matter from one spot to another? Is it any use our teaching them? The answer formerly was that it was no use, and that it was needless expense to teach such people even to read and write. The citizenship argument, of course, disposes of that; but it is to my mind clear that though we can do little or nothing to affect the working hours of these men and women, we ought to develop their faculties for the intelligent employment of that leisure which, though scanty, is in most cases far longer than it used to be. To garden, to keep birds or animals, to study some branch of natural history, or take up carpentry or carving, or any other subject to which they can turn for relaxations and refreshment, these, among other things, would make their lives brighter and more full of interest. I say nothing of higher studies in art or literature or science. If they reach these, our task is over except for finding means to give them what they want to know. It is the simpler and less robust folk whom I have in mind. If we cannot help their work, it must be our aim to give each of them a hobby.

In any case, my own experience of the last two or three years shows that there is now a much greater readiness to learn to do things rather than to say or write them. Any practical classes, combined though they be with drawing or mathematics, are more welcome and better sustained than the mere prolongation of book work.

D.—When should they be held? Experience shows that our chance lies principally in the evenings between September and April for about a couple of hours on two or three evenings a week. The day continuation class is no doubt of greater value, but is more difficult to secure. At present it is limited to certain classes of lads and men working on night shifts—so to speak, a mere accident of employment—or to those admirable day classes for apprentices or young men in large works whose employers give them special facilities. But here we travel beyond the scope of the continuation class proper.

E.—Who are to be the teachers? In the earlier stages of the continuation schools, at any rate, we must rely on the teachers of the elementary schools, blended with and supplemented by secondary-school teachers and qualified teachers of special subjects. A technical institute will to some extent have a whole-time staff of its own, and is now generally able to supplement it to some extent by the university graduates or other highly qualified individuals engaged in industrial or scientific works in large towns. But it must be borne in mind that the day-school teacher, who can teach all day and all the evening too, though it be only for two or three evenings a week for part of the year, is a man or woman of remarkable energy and freshness if he or she can do both tasks well. Teaching, live teaching, teaching with any touch of inspiration about it, the only teaching that matters, is a very exhaust-

ing process, and it is doubtful if more than 10 per cent. of any large number of teachers can carry out effectively the double duties I have described.

Education committees in towns frequently refuse to give the headmastership of evening schools to anyone who is already headmaster of a day school, as involving too great a strain, and prefer to appoint a senior assistant, who then acquires experience valuable to him when his promotion to a headmastership of a day school arrives.

These strong and strenuous natures who can continue to teach both by day and night are limited in number, and it is the lack of an adequate supply of teachers that is the first great obstacle to any general system of compulsory continuation schools. This is a very important point, since the temptation would at once arise to double the size of each evening class and revert to the large and inactive masses of the compulsory day schools.

There is one final word to be said, and a most important word, upon what continuation schools ought to give, and what at the present time they give in scanty measure—I mean their moral influence. I have been speaking throughout as a calculating administrator, reckoning in terms of demand and supply; so much instruction ordered, so many facts retailed. The enormous value of the secondary schools of England has been, not their teaching of classics or science or any special branch of knowledge, but their lessons in corporate life and manners, in their give-and-take and justice and fair play. But what of those whose industrial occupations prevent their protracting their daily education so as to take advantage of the numerous free places and scholarships and exhibitions and bursaries available in these schools? Do we administrators owe them no corresponding training, no education of character, or of spirit, in the classes to which they can resort? If you ask me how such training, such corporate life, is in any degree practicable, I am prepared with no answer. I can only say that until some attempt at provision is made, our system is imperfect. Something can be done, at any rate, at institutes with students' associations and clubs: something with boys' clubs and companies of scouts.

The most potent factor is, and always will be, the strong personal ascendancy of a teacher or principal. The crown of all education is the priceless contact with an inspiring personality, alike in the moral and in the intellectual world. The great difficulty of these classes is to secure any permanence or stability of relation, and in this respect the country village, for once, has an advantage. Indeed, there are probably few positions in life which give a man such opportunities for influencing successive generations for good as that of a village schoolmaster. It is not that in the towns and cities there are not teachers as good and able, very often even more unselfish and more intellectual, but there is more to interfere with and to obscure their influence. I only desire here to sound the warning note that continuation schools should not be mere intellectual general providers, places where, in Lord Bowen's phrase, "knowledge is ladled into troughs"; we should try to make them schools as well, with all the meanings and associations that ought for every one of us to make school a sacred word.

*Outlines of the World's History.* By E. Sanderson. xv+664 pp. (Blackie.) 6s. net.—Mr. Sanderson's useful manual is too well known to need recommendation from us now. This is a new and revised edition, in which many changes have been made in the text to bring it up to date with the most recent knowledge, the maps and illustrations have been improved, and the story is brought down to our own days.

## LONDON SCIENCE MUSEUMS.

THE committee appointed in March, 1910, to consider and report upon various questions in regard to the present condition and the future development of the collections comprised in the Science Museum at South Kensington and the Geological Museum in Jermyn Street, has presented its report to the President of the Board of Education, and the report is available as a White Paper (Cd. 5625).

Referring to the purposes the Science Museum should serve, the report states that:

So far as is possible by means of exhibited scientific instruments and apparatus, machines and other objects, the collections in the Science Museum ought to afford illustration and exposition of the various branches of science within its field and of their applications in the arts and industries. The museum ought also to be a worthy and suitable house for the preservation of appliances which hold honoured place in the progress of science or in the history of invention. Where objects that fall under these various categories are suitably arranged and displayed, visitors of widely different types find advantage in examining them. Young students who are prosecuting definite studies may derive much benefit from systematic examination of special sections or groups of objects. So, too, the museum should serve others who on particular occasions wish to obtain from the collections information regarding recent advances in science or in industries, or about some subject which, at the moment, is either of general public interest or of professional importance to themselves. Again, the objects exhibited or otherwise preserved in the museum should be accessible for close inspection by accredited visitors who are engaged upon investigations related to science or invention. A large proportion of those who visit a museum have, however, no such definite inquiries in view, and it is of much importance that objects should be so selected and exhibited as to arouse the interest of these visitors, and to afford them in as simple and attractive a form as possible an opportunity of obtaining at least general ideas on the subjects which the collections illustrate.

Concerning the future development of the collections in the two museums, the report has much interesting information to offer which is arranged in accordance with the subjects illustrated in the collections. We select the following paragraphs as likely to be of service to our readers.

*Mathematics and Physics.*—The collection illustrative of mathematics and standards of measurement is chiefly historical, and is of considerable interest. It is well arranged, but there are practically no examples of modern standards of measurement, and further models of astronomical instruments should be added.

The physics section is hopelessly overcrowded. With more space, the good examples it contains might be arranged so as to give effective demonstration of the points in the history of investigation or in the principles of science which they illustrate. The historical collection, which is incomplete, should be made sufficient to show the growth of the subject, and there should be an adequate exhibit of apparatus and specimens illustrating the present development of physics. The list of instruments which in their modern form are hardly represented in the collection is a long one, and only a few of the objects now exhibited have been marked for elimination. Apparatus required for

the teaching of physics to elementary classes should be fully represented, but should be distinguished from apparatus used for advanced researches and discoveries.

*Chemistry.*—The apparatus set up to illustrate elementary chemical experiments should now be withdrawn from exhibition. The collection of specimens of elements should be revised, and that of compounds should be modified on a scheme restricted by the conditions of inspection in museum cases. An effort should be made to develop more fully the collection of apparatus of historical interest.

It is by no means easy to arrange a suitable representation of apparatus and appliances used in the chemical laboratory and of those used in the factory. This might, however, be secured by a method of grouping under "operations"; thus the various forms of apparatus employed in simple chemical operations should be fully illustrated, and then by means of models the corresponding forms of technical apparatus should be shown related to one another as they are when combined and applied in leading manufacturing processes. Such a scheme, when duly supplemented by models, photographs, and samples, would give a collection at once of technical and of historical interest.

*Geography.*—Some sections of physical geography are well represented in the existing collections, but the systematic representation of geography as a whole has not yet been attempted. The scope and objects of geographical teaching have changed greatly in recent years, and the time has come for the formation of a well-considered collection in illustration of the methods and results of inquiry and research in geography arranged so as to afford a comprehensive exposition of the subject. A collection on the lines indicated in the detailed report on the subject would increase the educational influence of the Science Museum, and would promote a full appreciation of the relations of various other sections of the museum collections. It would, at the same time, connect directly with other collections in London—those in the Imperial Institute illustrating the resources of the British Colonies and of India, the historical series of maps in the British Museum, the modern maps of the Royal Geographical Society, the collections in the British Museum and at Kew which deal with anthropology and with the geographical distribution of animals and plants. The scientific study of the sea—a branch of science which may be said to have been initiated by British investigations—has no adequate place in the museum now, but in our estimate of space required for the development of the collections illustrating geography with meteorology and related sciences, we have made due allowance for the representation of oceanography, and we feel assured that there will be no difficulty in arranging under that head a collection creditable to a country which has done so much for the exploration of the ocean.

The methods of promoting the various uses of the museums receive extended treatment in the report, and the committee makes a number of recommendations.

It has been customary in the Science Museum to afford special encouragement to teachers to utilise the objects in the collections more fully for educational purposes, and the opportunities now afforded in the museum for teachers to instruct their students by direct reference to the apparatus and models should be maintained and extended. . . .

We think that it should be a recognised feature in the

working of the museum to maintain as close touch as possible with societies the members of which are actively interested in the advance of knowledge or in the progress of invention in the departments to which the collections relate. This touch would be fostered more readily if there were in the museum a conference room in which a scientific or technical society might meet on any special occasions when the discussion was to turn upon objects in the collections.

The museum contains many sets of apparatus and appliances that present features of great interest in forms eminently suitable for demonstration by public lecture. It may be expected that in more ample quarters the collections will be enriched by gifts of valuable apparatus of this type. We therefore suggest that there should be provided in the new buildings a large lecture theatre in which these might be occasionally utilised in illustration of lectures given by experts.

In some museums it is the practice to arrange for public demonstrations at set times in the galleries by lecturers or guides acquainted with parts of the collections and able to give suitable exposition of the points the objects are intended to illustrate. We cannot well estimate how far such demonstrations would be successful in this museum, but we think that they should be tried in some form or other. In the present congested state of the building nothing of this kind can be attempted, but in a new building the space and other conditions should be such that there would be no material difficulty in the way of such a practice.

If suitable accommodation were available, the museum might afford valuable service by occasionally exhibiting temporary collections illustrating, with greater detail than is desirable in the standing collections, particular advances in science or developments in inventions, in specific industries, or in groups of industries. These exhibitions would be of much advantage to the museum itself, for they would form an excellent means of keeping the museum in direct touch with movements of the day. The objects shown in exhibitions of this kind would, as a rule, be obtained on loan, although in some cases they might be such as should be secured as acquisitions for the permanent collections. The preparation of a temporary collection often entails a good deal of trouble, but if the work of selection and arrangement is well done the result may be of much value. The benefit, too, of the exhibition may be made available more widely by lending the collection to other museum centres before it is dispersed.

As to loans from the museums to schools, teachers will welcome the following suggestions made by the committee :

The circulation of lantern-slides, a simple and valuable means of serving the country at large, is capable of important development. The collection of slides of photographs from the museum collections should be extended, and lists should be issued showing what small sets of selected slides are available for short loans as supplementary to the illustrations with which properly equipped schools now provide themselves. Slides should be issued on loan to local scientific societies as well as to schools.

It would be of advantage to exhibit in the museum objects that would serve to make more widely known new methods of demonstration suitable for school use. Each of these would be withdrawn from exhibition after it had become known or had been superseded. Many of them might be obtained on loan. They should include novel or

ingenious apparatus of proved advantage devised by teachers for the illustration of lectures or for laboratory use, models illustrative of mechanical laws or devices or of important or novel details of construction, and apparatus for the demonstration of important principles or of recent advances in science. Selections from these objects should be available for issue on loan for exhibition or demonstration on suitable occasions at centres where a number of teachers were likely to benefit by examining them.

## THE TEACHING OF NEEDLEWORK.<sup>1</sup>

THE term "needlework" should include :

- (1) Drafting and adapting patterns to scale, from direct measurement.
- (2) Cutting of full-size and half-size patterns, and of material.
- (3) Fixing—processes in common use.
- (4) Sewing—stitches in common use.
- (5) Information concerning—
  - (a) The proportion of undergarments in general use, including simple unlined blouses and skirts.
  - (b) General rules relating to methods of making and mending garments.
  - (c) Materials and their uses.
  - (d) Prices, and the way to make specifications of cost.
- (6) Knitting—socks, stockings, and simple articles.
- (7) The use of the sewing machine in the upper classes only.

*Age.*—In elementary schools instruction in needlework should begin in Standard I. (children of about seven years of age), whether this class be in infant, junior mixed, or girls' school. In secondary schools instruction should begin in the lowest form of the school.

*Room and Equipment.*—In elementary schools an ordinary class-room may be used as a rule, provided the desks allow of easy posture and proper movements. Rooms used by upper classes should be equipped with sufficient table accommodation for cutting out. In central elementary, or higher grade schools, a room devoted exclusively to needlework or other domestic handicrafts is advisable. In secondary schools a special room or rooms, with conveniences for demonstrating, and sufficient accommodation for cutting out are a necessity. Trestle tables with collapsible legs are an advantage where space has to be considered. Suitable cupboard and storage room for pupils' work, teachers' equipment, and materials in stock is necessary in every school.

In Government training colleges or training schools of domestic subjects it is imperative that every authority should provide the necessary equipment, suitable in kind and character, and adapted to the requirements of the teachers in training. The comfort and healthful position of the students while at work should be the first consideration.

*Size of Class.*—The number in a class in elementary schools should not exceed forty to fifty; in secondary schools twenty to thirty. Smaller classes should be recommended, or a capable assistant should be provided.

The number of students in a class in Government training colleges should be from fifteen to twenty, and in training schools of domestic subjects from twelve to fifteen.

*Time devoted to Subject.*—The time devoted to the sub-

ject should be: in elementary schools, at least 2 hours 40 minutes per week during the child's school life; in secondary schools, at least 1½ hours' average every week during the whole year for six years (the years need not be consecutive). A reasonable amount of home work is recommended in upper classes or forms in addition to the time specified. Bursars and student teachers should have a specially thorough course of instruction, in order to prepare them for teaching needlework on these lines. The headmistresses of girls' elementary schools should be asked to give facilities to student teachers for observing and taking an active part in the needlework lessons of the various classes.

In Government training colleges not less than 1½ hours per week of definite instruction for five terms out of the two years' course, in addition to the actual time necessary for preparation and time required for practice in teaching.

*Note.*—This presupposes that the student has a good knowledge of stitches and processes before entering college.

In training schools of domestic science not less than twenty weeks (500 hours approximately).

*Qualifications of a Teacher.*—The headmistress in an elementary school should be certificated, not necessarily possessing a needlework certificate other than the certification that the teacher has received a graduated course of instruction in the methods of teaching needlework, cutting-out, and knitting, and she should be responsible for the needlework throughout the school.

In a secondary school a specially qualified teacher, holding a certificate or diploma from a training school or other examining body recognised by the Board of Education, should be appointed.

In a Government training college or school of domestic science an efficient, competent, and trained teacher who has had experience in teaching children is absolutely necessary.

*Posture.*—All seats should be flat and horizontal, with an upright back, and the worker should be made to see the advantage to be derived from sitting in an erect position, with the head poised naturally and both feet on the foot-rest. The work should then be held slightly above the level of the waist, and the hands kept five or six inches away from the chest. This posture will ensure that the work is kept at the regulation distance from the eyes.

*Place in Curriculum.*—In all schools the subject should form part of the course of general instruction, and be regarded as a necessary and essential feature of a girl's education, occupying its proportionate place in the school time-table. The teacher of needlework should confer with the other members of the staff respecting means whereby the instruction in other subjects, such as arithmetic, geometry, art, science, &c., may be correlated so as to show the advantages of practical application.

The committee is of opinion that needlework should rank as manual training, but realises the impossibility at the present time of reducing the classes to the number recognised for manual training.

*Materials.*—Materials should be soft in texture, pervious in nature, and soft coloured, and suitably contrasting cottons should be used for necessary specimen work. The following implements should be provided for each scholar: ruler and pencil, one pair of scissors, thimble, tape-measure, pins, and needles of proper relative size to the cotton used. It is recommended that each scholar keep the implements in her own bag or other receptacle.

*Size of Stitches.*—The number of stitches worked to an inch will depend upon the texture of the material and the

<sup>1</sup> Suggestions offered by a special committee of the Association of Teachers of Domestic Subjects appointed to consider the "Teaching of Needlework."

kind of stitch; e.g., longcloth at 6d. to 7d. per yard will allow of making eight to ten stitches to an inch in hemming, and twelve to fourteen in sewing, without producing any undue strain on the eyesight. In no circumstances must counting of threads be permitted. This law should be kept in the spirit only. It is advisable to make all needlework as practical as possible, and any attempt at fine, close, laboured work should be discouraged. The importance of a quick and ready response with needle and thread is most desirable.

**Schemes of Work.**—Each section (elementary schools, secondary schools, and training colleges) should have a well-graded "scheme of work" for the course of instruction. A carefully thought-out and progressive syllabus for each term, framed according to the requirements of the scholars or students, should be prepared. Practice on "specimen pieces" should be sparingly used. The work done should produce articles for use, small in size at first and of typical shape.

Mending should be taken on broad lines; the pupils should learn how to assess the value of the article to be repaired, and the time of the worker, before deciding upon the method of renovation.

Suggestion, criticism, and questioning, in which both teacher and girls take part, will be found an inspiring method of teaching and developing full power in the pupils.

It does not seem advisable to give preference to any special scheme, as circumstances and conditions of working differ so widely; but the advantage of following good and tried methods should be borne in mind by teachers who are gaining experience in teaching this subject.

**Note.**—Circular 730, "Suggestions for the Teaching of Needlework in Elementary Schools," and Circular 719, "The Teaching of Needlework in Secondary Schools," both issued by the Board of Education and published by Wyman and Sons, Ltd., Fetter Lane, E.C., together with the "Oxford Senior Local New Syllabus for Needlework" (Local Examination Offices, Merton Street, Oxford), should be in the hands of every teacher.

## HISTORY AND CURRENT EVENTS.

OUR readers are doubtless familiar with the paradox that "rebellion never succeeds," and with the justification thereof that "when it succeeds it is no longer rebellion." In a similar spirit, the English have never confessed to making revolutions. Magna Carta was, in the opinion of its framers, merely the statement of the principles on which the government of the country had been conducted "since the memory of man." The work of the Tudors was but the recovery of independence from "the usurpations of the Bishop of Rome." Pym and Cromwell were equally opposed to "innovations in Church and State"; and the one event to which we have given the name of "revolution" was, as the work of Tories as well as Whigs, merely following the lines of least resistance, and only substituted a Protestant heiress for her lately born brother. And though the constitution is now greatly different from what it was in 1688, it is part of the orthodox creed that all things were so ordered and settled in that fateful year that they have needed no legislative alteration. So now what Parliament is doing at Westminster in the year 1911 is "not a revolution," so the Prime Minister says, it is "only limiting the veto of the House of Lords."

WHO should decide which is the successful candidate at a Parliamentary election? Surely the court which issues

the writs should judge of the validity of the return. Yet quite early in the modern history of the House of Commons it claimed the right to decide such matters, and regarded the Stuart King's opposition to their claim as a breach of their privileges. And, having gained the right, how did they use it when party government became organised in the eighteenth century? There was no pretence at judicial inquiry. Each party sought to eject such of its opponents as they could find a decent excuse for excluding from the newly elected House, and Walpole saw his "mounted scale aloft" when in 1742 he was defeated in an election petition. Committees of the House were found to be no remedy for the scandal, and at last the function of deciding in such matters was handed over by statute to judges selected for the purpose. That is why, last April, the Speaker told the House they would be acting illegally if they passed a vote setting aside the decision of the judges in the Exeter election petition.

DID any of our readers ever try to understand the tables which are printed at the beginning of our Book of Common Prayer for the object of "finding Easter," and do they understand the mystery of Dominical letters? Have they ever heard of Quartodecimans, and the difference between east and west in the third and following centuries on the date of keeping the Christian spring festival? Or a more practical question: Would they like to have their Easter holiday always at the same date each year instead of having it vary according to the eccentricities of an ecclesiastical new moon? If so, they may be interested to know that the German Government is consulting both the spiritual and temporal authorities of that country with the view of fixing Easter to a definite date each year. The State is once more disestablishing the Church, unless, indeed, some future Emperor may again have to "go to Canossa."

WE have been counted once again. With the possible exception of a few Suffragettes, all who inhabited the British Isles on the night of the first Sunday in April were named and, to a certain extent, described by Government agency for purposes of various kinds—fiscal, social, and economic. We are no longer troubled, as the author of the Hebrew Book of Kings was, by doubts as to the lawfulness of such proceedings. Indeed, all successful government must depend on such enumerations, not only of the people, but of their wealth. Otherwise we get such blundering methods of taxation as the advisers of Richard II. fell into in the years 1378-81. It was to avoid such blunders that William I. caused Domesday Book to be compiled, and Plantagenet kings made similar inquiries. Since the beginning of the nineteenth century such countings have taken place with more or less regularity, but we have not yet applied them as our cousins of the United States of America have done. There, by a permanent law, every census has the effect of what we in Great Britain call a Redistribution Act.

SOME of the oldest libraries with which the world is acquainted consisted of clay tablets, written on while the clay was soft, and then baked. Ancient monarchs inscribed their laws and other monuments on stone. We read in Hebrew story of words written on white-washed rough walls. For many a hundred years the writing world used parchment, and either rolled it or bound it into the shape of modern books. Then, somewhere about the time of the invention of mechanical printing, paper began to supersede parchment, handwriting began to deteriorate, and books printed on paper began to multiply.

The newspaper Press is another variety of record, and what tons of it we are accumulating for the future historian to wade through! But the development of the arts seems to be promising newer ways of record, and the libraries of the future will have rooms devoted to cinematograph and gramophone records. We hear that it is proposed thus to transmit to posterity some at least of the aspects of ordinary life and inform distant generations of what manner of folk we are. Will they be interested in it? and what will they think of us?

## ITEMS OF INTEREST.

### GENERAL.

THEIR MAJESTIES THE KING AND QUEEN have expressed the hope that it may be found possible to grant a week's extra holiday in honour of the Coronation to the boys and girls in all schools. It is understood that a notification to this effect has already been made to the headmasters of some of the larger public schools, and to the responsible authorities in the case of the public elementary schools. Their Majesties would be much gratified if such an arrangement could be made.

AMONG many interesting points raised at the afternoon sessions of the Imperial Education Conference, held during the last week in April, was the method of teaching geography advocated by Mr. Mackinder. His aim is to enable pupils to visualise, to think geographically. Doubtless the method is admirable, but it appears to make light of a number of practical difficulties, the most important of which was voiced by a speaker who reminded the conference that by far the largest number of pupils consisted of children of limited capacity, and that while the course outlined appealed to the trained intelligence of those present, it could not do so in the same way to children of tender years, especially when but a small part of the timetable could be assigned to it. Far more practical was the paper on the teaching of arithmetic in elementary schools. The experiment described—for it is still an experiment in elementary schools, though, as one speaker said, its principle had been advocated for forty years—is based on the principle that in the early stages the pupils should obtain a sense of number and acquire at a later age the power of manipulating figures, the symbols representing numbers. In this way the time spent in the lowest standards on the manipulation of figures is saved. The separation of, and the separate treatment of, the two difficulties—number and manipulation—cannot be for anything but good.

MR. LEGGE's paper, referred to on p. 220 also, was so full of matter for discussion that it might well have taken up a whole session; the time allotted to it was altogether too short to do it justice. To take two of the points raised—ambidexterity and co-education. The unofficial members of the conference were left in doubt as to the opinion of the majority of the delegates on both these points. The former was little more than mentioned, though Mr. Legge in his reply put forward an unanswerable argument in a description of the disability he had suffered from not being allowed to develop naturally and use his left hand when nature bade him. The emphatic opinion expressed by an Australian delegate and by Mr. Legge, who had in this respect also suffered *in corpore vile*, against co-education, must have created the desire in many of those present for a much fuller discussion and for the reasons why New South Wales and Mr. Legge have decided against co-education; and for information about any parts of the Empire in which the boys and girls are educated together for educational reasons rather than for those of economy.

The latter class appear to be more prevalent than the former among the public authorities of this country. An official report of the proceedings at the private morning sessions of the conference has been published. We hope to refer to this report in our next issue.

At an interesting meeting on May 6th at the Drapers' Hall, presided over by Mr. Acland, the question of superannuation for teachers in secondary schools was discussed. Representatives from the associations included in the Federal Council of Secondary School Associations and delegates from other associations were present. Resolutions were adopted affirming the necessity for a system of superannuation for teachers in secondary schools and technical institutions; declaring that the scheme should be national, so that a teacher might pass from one school to another without jeopardising his claims to consideration later; and suggesting that the scheme should be contributory on the part of the teachers and be managed at the cost of the State by a council. The council, it was decided, ought to consist of representatives of the State, of the local education authorities, of governing bodies, and of teachers in the schools and institutions concerned.

THE annual general meeting of the Union of Directors of Music in Secondary Schools was held on May 1st. Though no decision was arrived at, an interesting discussion took place on the question of the amalgamation of the union with the Association of Assistant-masters. A subcommittee of the Union reported that the amalgamation was in the interest alike of music masters and of music as a school subject. By forming a separate branch of the association, music masters would preserve their individuality and at the same time obtain direct representation on the executive and participate in all the benefits of the association. Mr. T. P. Fielden, of Fettes College, read a paper on pianoforte playing and its influence on teaching in schools; Mr. W. H. Thelwall described his system of sight-reading for pianists; and Dr. Lloyd opened a discussion on school brass bands.

THE Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield has announced its intention of granting "Housecraft Certificates" to girls in secondary schools. The certificate is to be awarded on the result of examinations conducted by the Board in the "Housewifery Forms" of girls' schools. Candidates are to be not less than sixteen years of age, to have been at an approved school or schools for at least three years, and to have received instruction in the ordinary secondary-school subjects up to the standard of the "School Certificate examination." It thus appears that the new examination in housecraft will rank with that of the "School Certificate," not with that of the "Senior School Certificate," which under certain conditions is accepted as "Matriculation."

FURTHER details given in the Regulations make it appear probable that the chief aim in the teaching of arithmetic, elementary general science, and elementary biology would be to give instruction that would be useful for the study of more strictly "domestic" subjects. Doubtless this new examination will meet with warm welcome in those schools in which it has been found expedient to create "Housewifery Forms." Where it is a necessity for girls to leave school at sixteen or seventeen years of age, and take up home duties at once, such courses as are suggested will have taught the girls much useful knowledge, which they will at once be able to put into practice. But, on the other hand, those teachers who

are anxious to maintain a "liberal" education for girls will regret that so much of the valuable school time before the age of sixteen or seventeen should be devoted to learning facts which will only be useful if remembered, and to acquiring skill in various domestic arts which will only be retained if put into practice. Such teachers wish every woman and girl to have the opportunity of studying housecraft at the appropriate time, but they urge that the all-too-short school time should be devoted to mental training, to acquiring good habits of mind, rather than knowledge of facts, and they look to our universities to maintain this high standard, and not to give a general consent to courses which, however excellent outside the school curriculum, are nevertheless to be regretted within it.

A SUMMER course of study for teachers in geography will be held in August at Cambridge under the joint auspices of the Local Examinations and Lectures Syndicate and the Board of Geographical Studies. It will begin on August 8th and will end on August 25th. Lectures, demonstrations, and practical work will take place every morning and on alternate afternoons. The fee will be £3 3s. for each student. Early application is necessary, as the numbers will be limited. The course will be given by the university lecturers in geography, and will include: the principles and practice of teaching geography; physical geography; topographical survey and map-making; history of geographical discovery. The course will consist of lectures and practical work in the University laboratories, and surveying in the field with other outdoor work. Some excursions will be arranged.

THE Modern Language Association has issued the report on external examinations for schools which was adopted at the annual meeting in January last. "Preliminary examinations" are condemned. For the Junior examinations detailed recommendations are given, and the Senior examinations are also dealt with in detail. Much attention is rightly devoted to the oral test, which is regarded as essential in modern language examinations. This presents considerable difficulties to the examiners, and the suggestions of the report deserve, and will doubtless receive, full consideration from examining bodies. The sections that deal with written examination are no less valuable; attention may be directed particularly to the remarks on grammar, vocabulary, and word-formation, which apply only to the Junior examination, as "in the Senior examination the special grammar test should be eliminated." This would be a distinct reform. Equally progressive is the treatment of composition, and it is added that "translation from English should form no part of the examination at the Junior stage." In the Senior examination "free composition and translation [from English] should both be obligatory." Another section of the report deals judiciously with the question of set books. In conclusion, the opinion is expressed that "the low percentage usually required for a pass is a serious defect in the present system of external examination," and it is recommended that "the percentage for a pass should be such that well-taught candidates of average abilities should be able to attain a higher mark." We understand that this report is based on two years' deliberations on the part of a strong subcommittee; it is a piece of work on which the Modern Language Association may be congratulated without reserve.

THE L.C.C. Education Committee, after the consideration of a report from the Day Schools Subcommittee on school gardens for London elementary schools, has approved the principle and recommended the expenditure

on gardens of £300 during the school year 1911-12. The average cost of forming a school garden is about £15, so that if twenty additional gardens were formed each year the cost would be about £300. The total number of gardens which should be formed in existing schools cannot yet be estimated exactly, but it is not anticipated that the number will exceed 100. There are already about 171 of these gardens in or adjoining the playgrounds of public elementary schools maintained by the Council. Sixty applications for the formation of school gardens have been postponed pending a decision on the general question. The school garden is used in connection with the teaching of botany and also in connection with the observation and nature-study lessons which are included in the curriculum of the majority of the elementary schools. Formerly, the subject of nature-study was confined almost wholly to the infants' schools, but it is now taking an important place in the work of the senior departments. Since 1905 the Board of Education has included this subject in the Code of Regulations for Public Elementary Schools. Although the gardens at many of the schools have been formed for some time, the experiment of utilising them for nature-study is a comparatively recent one.

THE thirty-seventh annual Conference of the Association of Headmistresses will take place on June 9th and 10th at the High School, Wakefield, by kind invitation of Miss McCroben. The president, Miss Burstall, will preside. It has been decided to open the conference this year to representatives of the Press, for the first time since the association was founded.

A CONGREGATION at Oxford University on May 16th decided to make Greek an optional subject in Responsions for candidates who afterwards take honours in mathematics or natural science. On a division the statute was approved by 156 to 79 votes—a majority of 77.

At a meeting of the Secondary Schools Association held on May 16th, recent regulations of the London Education Committee came in for severe criticism by several of the headmasters of London secondary schools. The regulations complained of deal with the salaries of assistant-masters in London secondary schools to which the London County Council pays grants. The speeches here and there showed some want of appreciation of the Council's point of view, and it is well that a subcommittee was appointed to inquire further into the complaints and to report to another meeting. The subcommittee includes Messrs. W. G. Rushbrooke, H. S. Powell, and R. F. Cholmeley.

ON the recommendation of its Secondary Schools Committee, the executive of the National Union of Teachers has had under consideration the position of teachers engaged in secondary schools and in other forms of higher educational work with regard to superannuation. The present Government superannuation scheme is not only unsatisfactory from the point of view of teachers in public elementary schools, but secondary-school teachers are not even allowed to contribute or to derive any benefit under the scheme, while there are but few secondary schools in which any provision is made by the school authorities for retiring allowances for their teachers. The following resolution has been adopted: "The executive of the National Union of Teachers deplores the very unsatisfactory position in which teachers engaged in higher educational work are placed with regard to superannuation, and urges that such teachers should be included in all State or rate-aided schemes for the superannuation of teachers."

THE artificial lighting of school class-rooms is a matter of such importance, that it is to be hoped the April issue



of *The Illuminating Engineer*, the official organ of the Illuminating Engineering Society, will be studied carefully by all who undertake responsibility for the arrangement of school lighting in any form. This number of the magazine contains the complete discussion on school lighting opened by Dr. J. Kerr, medical (education) officer to the London County Council, and Dr. N. Bishop Harman, at the meetings of the Illuminating Engineering Society in the early months of the year. The importance of avoiding methods of lighting that are apt to weary the eyes of teachers and pupils is so great that it is suggested that no unscreened unduly bright source of light should be visible in the direct line of sight from the desks or from the blackboard. It was generally admitted in the discussion that sufficient illumination for reading is of paramount importance.

THE present year marks the "coming-of-age" of the Day Training Colleges, and at the Holborn Restaurant on May 13th the past and present students of the Day Training Department of King's College, London, took advantage of it during their annual reunion to present Prof. J. W. Adamson with a certificate of life membership of the London Library, a gold-mounted fountain pen, and a morocco case containing the names of 260 subscribers. Mr. F. A. Bahns, in proposing the health of Prof. Adamson, gave a short history of the progress of the department, and bore graceful tribute to the devoted services of Prof. Adamson on its behalf. About a hundred and thirty past and present students attended, and the meeting was of an enthusiastic character.

#### SCOTTISH.

THE annual Congress of the Educational Institute of Scotland took place this year at Easter in Oban. In former years the congress met during the Christmas recess, but owing to a succession of tempestuous Yuletides it was decided to try a more genial season on this occasion. But Scotland can serve up samples of winter weather at any and all seasons, and for the Educational Congress she seems to have reserved her choicest specimens. Snow, sleet, wind, rain, thunder and lightning greeted visitors to the Queen of the Western Isles, and with pitiless persistency kept by them throughout the week. The president, Mr. James Beattie, rector, Greenock, in his opening address reviewed the present educational position. Mr. Beattie is no *laudator temporis acti*. The golden age of education with him lies in the present and the future, not in the past. All the hoary aphorisms that do duty for original thinking with the unthinking came up for judgment, and were sent to their own place. Children are taught to think, our manners are improving, our home training was never better, our workmen do take pride in their craft, these were some of the positions Mr. Beattie maintained as against the great body of educational pessimists. Perhaps his review was too roseate-hued, but it comes as a refreshing and bracing antidote to the jeremiads of the "man in the street." Mr. Leander Fyfe, rector, Queen's Park School, gave an interesting and luminous address on "The Organisation of Scottish Education." The various stages in the growth of Scottish education were put with remarkable clearness in their proper historical setting and perspective; but perhaps the chief value of the address lay in its insistence on the difference of the educational problem in town and country. This fact is not yet fully realised by the Department, which is obsessed by the idea of a beautifully symmetrical system; but the growth of sub-intermediate schools in remote districts seems to show that the Department is

now alive to the situation, and determined to give to rural pupils the advantages possessed by their urban fellows.

FOR some time past the Treasury and the Carnegie Trust have been urging the University authorities to charge for each faculty a composite or inclusive fee, that is, a fee covering a certain curriculum, and not each class separately as at present. This plan would undoubtedly simplify the clerical work of the Trust and of the University authorities, and, provided the inclusive fee is *low enough*, would be no disadvantage to the student. But there's the rub. The University courts have had the matter under consideration, and are prepared to accept the principle of a composite fee provided it is *large enough*. £12 or £13 a year has been spoken of for the arts faculty. This would represent an increase of £3 or £4 on the present average cost of a year's course. The effect of such an increase would probably be to compel a larger number of students to become beneficiaries of the Carnegie Trust. It would undoubtedly impose on students who preferred to pay their own way an additional tax for which there would be no additional benefits. During the past decade, the ordinary fee for an arts graduation course has increased from £22 to £29. The new proposals would bring it up to £39, a prohibitive sum for the typical Scottish student of the past.

THE General Council of Glasgow University has prepared an elaborate report on the question of an inclusive fee. While welcoming the proposal on various grounds, the council is strongly of opinion that it should not be made the occasion for lengthening the normal arts course, nor for increasing the cost to the student or his parent. Parliament has recently given an additional subvention of £40,000 to Scottish universities, and it would be indeed surprising if this were made the occasion for an increase in the students' fees. At the statutory general meeting of the council the report gave rise to an animated discussion. Dr. Ebenezer Duncan pointed out that the proposal would prejudice extra-mural teaching, which had done so much to raise the character of the medical schools of Scotland. Sir David McVail took up the cause of the poor student who worked his way through the University, one class perhaps at a time. The funds of Glasgow University had increased enormously during his connection with it, yet it seemed that the larger was their income the higher they were determined to make their fees. Finally, the report of the council was carried, with the addendum that neither the cost nor the length of the course was to be affected by the new proposals.

THE Scottish School Boards have been greatly exercised over the demands made upon their funds by the new Teachers' Superannuation Act. They first of all approached the Education Department, but were told that the superannuation scheme was embodied in an Act of Parliament to which they themselves were consenting parties, and that the Department had no option but to produce the scheme in terms of the Act. An attempt was then made to secure from the Treasury an increased grant to meet the cost of the scheme. The Treasury in the most emphatic manner refused to receive a deputation on the subject, pointing out that at the time of the passing of the Act it had only agreed to it on condition that it had no responsibility for its financial provisions. The Boards, it is to be feared, have been guilty of a grave mistake in tactics. They knew, or should have known, of this bargain with the Treasury. To put super-

annuation burdens, therefore, in the forefront of their demand for more money was to court an inevitable rebuff. Their policy should have been to show that the limited resources of the Education (Scotland) Fund were insufficient to meet the great and increasing demands of the new requirements of the Act of 1908, of which superannuation was one, but by no means the most onerous.

A CONFERENCE of representatives of the General Councils of the Scottish Universities has arrived at fairly unanimous findings in regard to the character of the Preliminary examinations. It is much to be desired that this question should be settled speedily, as teachers are experiencing great difficulty in advising their pupils as to the best course to pursue. The only material difference of opinion arose over the position of Latin. By a majority of one it was decided to make Latin an optional subject in the examination. The supporters of compulsory Latin will probably appeal to the University Court, which has the final decision in the matter, but it is generally expected that the position of the majority of the representatives will be upheld. The following are the principal resolutions arrived at: (i) In future a pass will be secured by a satisfactory appearance in three subjects on the higher standard and one on the lower, or by two subjects on the higher standard and three on the lower. (ii) The standard of the Preliminary examination in medicine should be made the same as that for arts and science. (iii) Instead of the present Joint Board of Examiners, another body should be established the members of which would hold office for a period of five years. (iv) The new Entrance Board should be empowered to consult other educational bodies and to appoint examiners to supervise the work and to control the methods and standards of examination.

DURING a discussion in the House of Commons on Imperial and Local Taxation, the Chancellor of the Exchequer had occasion to refer to the recently appointed Committee on Local Taxation, and took the opportunity to pay a unique and notable compliment to Sir John Struthers, one of the members of the committee. He said that Sir John was himself a product of the rural districts, and knew the difficulties and problems they had to contend with. In his opinion Sir John Struthers was one of the ablest officials he ever had the pleasure of meeting. Scottish teachers have long been of the same opinion, and they are proud of the striking and unprecedented tribute paid to their chief.

#### IRISH.

THE Joint Committee representing the heads of intermediate schools in Ireland has issued the following statement in reference to the proposals put forward for increased intermediate grants and the agitation of the Assistant Masters' Association: (i) That as heads of Irish intermediate schools we renew the demand set out in the statement issued last year by the Joint Committee of heads of schools for the full equivalent of the Treasury grants in aid to secondary education in England and Wales, and for the payment, independently of such grant, of the cost of administration, inspection, and examination. (ii) That Irish intermediate schools, founded and maintained by private resources, are independent private schools, and in no sense State schools, and we cannot consent to any conditions attached to State grants which would destroy or impair the independent character of our schools. (iii) That we regard the independence of the head of the school in all matters of its internal government as an essential condition of the freedom of the

schools. (iv) Subject to these two conditions, the maintenance of the status of our schools as private, not State, schools, and of the independence of the head in the internal government of the school in all matters concerning its efficient working, we are prepared to give favourable consideration to any conditions to be attached to a State grant which may be proposed by the Government or other responsible authority. (v) Among those conditions, subject to the two principles laid down, we should cordially welcome some which would secure suitable provision for a substantial improvement in the position of assistant-masters in intermediate schools. (vi) We would point out that the most competent educational authorities in England and elsewhere insist strongly on the vital importance of the freedom we claim, in the case of higher schools, and the same claim has been made on several occasions by Mr. Runciman on the authority of the Board of Education. (vii) That we are of opinion that no good purpose would be served by any discussion of details of the claims of assistant-teachers until the Government, either directly or through the Intermediate Board, makes some definite proposal as a condition of an adequate grant. The importance of this document lies in the clear recognition of the claims of assistant-masters to improved treatment.

THE Synod of the Church of Ireland, meeting shortly after Easter, passed the following resolution in reference to intermediate education: That this Synod enters an emphatic protest against the injustice inflicted on Ireland in respect of secondary education, and desires to press on the representatives of this country in Parliament the urgent necessity for insisting on equal treatment with that accorded to Great Britain in this matter, and that a copy of this resolution be sent to the Irish Members of Parliament.

THE Margaret Stokes Memorial Lectures in Alexandra College were this year delivered on the evenings of May 16th, 17th, and 18th by Mr. E. C. Quiggin, fellow and lecturer of Gonville and Caius College, Cambridge, on the poetry of the Irish bards from 1200 to 1500 A.D. The first lecture was on the Dean of Lismore's book, its contents and their relation to contemporary Irish literature; the second on religious poetry; and the third on panegyrics.

THE annual report of the Development of Ireland Fund, which has just been issued, is a melancholy comment on the way in which a fund which should have been given to education, like the equivalent funds in Great Britain, to which it owed its origin, has been diverted to other purposes in order to save the Treasury. More than £160,000 goes to the National Debt Commissioners in connection with the Land Act, and £20,000 to the Congested Districts Board; only £7,000 to the Department of Agriculture and Technical Instruction for technical instruction, and £4,304 to the Commissioners of National Education on account of King's scholars in training colleges under private management.

#### WELSH.

THE Denbighshire Teachers' Association has asked the staff committee of the Education Committee to receive a deputation of teachers to discuss grievances. The reply has been given that the committee is willing to consider and redress every case of real grievance submitted to it, but it is not prepared to discuss the principle of a scale of salaries. The Teachers' Association has passed a resolution unanimously putting on record their disappointment that a deputation would not be received to consider a scale of salaries, and their thorough dissatisfaction with

the present system of dealing with advances of salary. The Cardiganshire Education Committee has just rescinded its scale of salaries. As that committee has declined to place head teachers of voluntary schools on the scale, the rescinding of the scale is not without significance in view of the judgment with regard to the Swansea schools.

WHILST the Denbighshire Education Committee declines to adopt a scale of salaries, its medical officer states that medical inspection has naturally increased the work of the teachers, and he desires to acknowledge their valuable assistance in the work of himself and his colleagues. All children admitted to the schools during the year and those expected to leave school during the year, together with special cases presented by the teachers, were examined, the total being 5,111. It appears that 83.73 of the children examined were defective in some respect or other. Thus 72.2 per cent. had caries of the teeth, enlarged tonsils claimed 8.4 per cent., 9.6 per cent. were found to be below what is considered normal nutrition, 7.6 per cent. had dirty or verminous heads. The parents of any child with a dirty head were served by the teachers with a card of directions how to effect a cure within a week. But these extra duties, together with the regular teaching work of the teachers, apparently do not yet suffice to bring them a scale of salaries.

THE Carnarvonshire Education Committee has sent a claim to the Board of Education for a grant in respect of the Carnarvon Choral Class. The schedule of the claim shows that 258 students were in attendance during the session 1909-10. The Board answers that the instruction in vocal music of the character recognised by the Board could not be given in massed classes which have as their object the attainment of a perfect rendering of particular works, but must be given in smaller classes where the primary object is the attainment of a general training in singing and the theory of music. The Board regrets that it did not inquire more closely into the nature of the instruction to be given at Carnarvon before stating in March last that the class had been placed on the list of schools and classes regarded as eligible to receive grants, and in the circumstances it decided not to withhold grants entirely in respect of attendances during the session in question, but to pay a rate of one shilling for each complete twenty hours of instruction received by registered students. The Board is, however, unable to entertain the application for the recognition of the Choral Society for grants during the current session. Upon the suggestion of the Staff Committee, it was decided to reply pointing out that the Board had so far back as March, 1910, placed the class on the list of schools eligible for grants, and that it was not until April of this year that the Board expressed its inability to entertain the application to have the class recognised for the current session.

At the annual extra-collegiate meeting of the Court of Governors of the University of Wales, held at Newtown, Montgomeryshire, a recommendation was received from the executive committee in regard to the Appointments Board. In the speeches it was pointed out that numerous careers were open to Welshmen, and the object of the Board would be to put outgoing students on the right way. It would be necessary to appoint a first-class man with some academic distinction and well up in commercial matters as secretary to the Board. The executive committee recommended that a sum of £250 to £300 for five years be contributed to the salary of such an officer. It was decided that the offices should be located at the University of Wales Registry, Cardiff.

THE Welsh University Colleges at Aberystwyth, Bangor, and Cardiff have decided to raise the fees paid by students, e.g., in the art courses, from £10 to £12. A motion was brought before the University Court that in view of the increased grants to the University from the Government and of increased fees for tuition proposed to be charged by the colleges, the examination fees be reduced correspondingly. The Vice-Chancellor urged that if they brought the fees down there would be a risk of endangering the efficiency of the system. His opinion was that no young man of real ability in the Principality failed to find means of support during his university career. The wholesale abolition of fees in Scotland had had a deteriorating effect on higher education. The matter was referred to the executive committee.

#### A NEW SERIES FOR SCHOOL AND HOME.

- (1) *Modern Geography*. By Marion I. Newbigin.
- (2) *The French Revolution*. By Hilaire Belloc.
- (3) *War and Peace*. By G. H. Perris.
- (4) *William Shakespeare*. By John Masefield.
- (5) *Irish Nationality*. By Alice Stopford Green.
- (6) *Parliament*. By Sir Courtney Ilbert.
- (7) *The Socialist Movement*. By J. Ramsay Macdonald.
- (8) *Polar Exploration*. By William S. Bruce.
- (9) *The Evolution of Plants*. By Dukinfield Henry Scott.
- (10) *The Stock Exchange*. By Francis W. Hirst. (Williams and Norgate.) Each volume, 256 pp., 1s. net.

ALREADY Messrs. Williams and Norgate have achieved a success. Their new series, the Home University Library of modern knowledge is "going." The bookseller's shop and the bookstall have acclaimed it, and certain volumes have won a name in a fortnight. For this is no reprint: and its aim is to give a general outlook on particular questions, such an outlook as the busy man is constantly demanding. We will not quarrel with the title of the series, though as a title it may be difficult to understand, but will say at once that the series fills a gap. Its future success is dependent on the choice of books and of writers; and if the publishers are to be influenced by suggestions, we hope to see volumes on Greek Influence, Platonism after Plato, and the Spiritual Democracy. But there is no end to the volumes needed; and at present the first ten content us.

(1) "Modern Geography" summarises the new outlook on geography. It is not a physiography manual at all; but it takes phenomena which appear isolated and weaves them into the new geographical teaching; the welter of facts becomes systematised, and the book teems with suggestive thought. Mr. Belloc (2) characteristically announces his faith; but the book on the French Revolution does not seem to be so aggressive as we should expect; it is an attempt to bring forward the importance of the religious problem in that great experiment and to weave the movements of armies into the wider human interest. The characters, the phases, the battles, each have a chapter; the contemptible Rousseau, a modern political Chrysostom, has his usual niche. Mr. Perris (3) in his short history of "War and Peace" speaks, of course, on the side of the angels, and regards the cessation of war as the task of the century, believing, at the same time, that the white races are doomed. The question naturally obtrudes itself, Is it Peace which the world needs or is Peace only one of the factors which for a short time longer will keep the Western world master of the event? The book is fine reading.

Mr. John Masefield (4) gives us a clean-cut criticism of Shakespeare's plays and characters. He holds that we know nothing of Shakespeare's life and everything about his genius; he does not scruple to condemn crudity, and he is at the same time an idolater. The book tells us nothing of the coming reaction against Shakespeare, but it is full of illuminating remarks. It is a little marred by the author's continual tilting against the modern stage. His first word and his last are anti-theatrical. One of the most original statements in the book is that "nearly all boys can act extremely well. Very few men and women can." "Irish Nationality" (5) is one of the many pleas for the distressful country; but the writer does not seem to touch the geographical problem. If Ireland were depopulated to-morrow and re-peopled by any swarm which England or any other land could send, would the problem be settled? The history of Parliament (6) was wanted; it is a Fonblanque chapter enlarged and very clearly written by a master hand. Even more needed was "The Socialist Movement" (7), which in a convenient form is the special plea of one who knows his subject.

The remaining books, "Polar Exploration" (8), "The Evolution of Plants" (9), and "The Stock Exchange" (10), keep up the idea of the series. Apology must be made for the total inadequacy of this brief notice to do justice to the discriminating care exercised in the preparation, choice, and writing of this handful of books. They strike a new note, and are a welcome change from the everlasting reprint. Books, like other things, must occasionally be scrapped; and we willingly make room for newcomers, even if we have to clear out a shelf or two of volumes that have done good service in the past.

### UNIVERSITY AND SCHOOL IN THE UNITED STATES.

(1) *Great American Universities*. By E. E. Slosson. xvi+525 pp. (New York: The Macmillan Company.) 10s. 6d.

(2) *The Higher Education as a Training for Business*. By President H. P. Judson. 54 pp. (Cambridge University Press.) 2s.

(3) *The Training of Teachers for Secondary Schools*. By J. F. Brown. x+335 pp. (New York: The Macmillan Company.) 5s. 6d.

A BOOK on the great American universities raises expectations. The university in the States bids fair to occupy a similar place in the national life to that of the *Hochschulen* in Germany, and we know what a fascinating book Prof. Paulsen gave to the world when he told the story of the universities of his native land. Dr. Slosson is not a Paulsen, and his story is too much from the characteristic American point of view—the view which is, above all things else, impressed by magnitude—to give it final value. Nevertheless, as a popular, rather journalistic account of things as they are, it is interesting reading. The writer has certainly succeeded in giving individuality to the fourteen institutions of which he treats. The conservatism of Yale, which still looks with suspicion upon her famous technological institute; the *Lernfreiheit* of Harvard, where the so-called "elective" system allows so many students to take a "shot-gun" course, like that of Mr. C., who took fifteen different subjects during his four-year course—nine of them for one year only; the marvellous growth of Teachers' College, Columbia, until recent years the Cinderella of that institution,

and now boasting an independent annual income of £127,000 and a yearly enrolment of 1,544 students, who have had, on the average, five years' experience in teaching; the stimulating effect of the great Carnegie foundation for the advancement of higher teaching—these and similar topics are written or touched upon with considerable skill. No subject is too sacred for discussion. Even the president is reviewed in terms which throw an interesting light on that peculiarly American institution. "In talking with many men of many faculties, I have found the opinion deplorably prevalent that a college president is *ex officio* somewhat of a coward and a liar."

One of the most noteworthy features in university development is the increase in the relative proportion of students who intend to follow a business career (2). The president of Chicago University has written an interesting little book in defence of this tendency. Its principal argument is based upon a disciplinarian view of education which would have pleased Locke rather than upon the actual efforts of university authorities to provide specific vocational training. The higher education gives mental grasp and a keen sense of honour; it makes men more adaptable to society at large; it trains to enjoy as well as to do! Whatever one may think of his case, the essay is really nothing more than an interesting piece of special pleading which might well have been published for sixpence.

The universities have not yet solved the question of admission satisfactorily. Most of them now accept the certificates of accredited schools, but Harvard, Yale, Columbia, and Princeton still admit on examinations alone. The State universities obviously feel the need of keeping up a close connection with the State high schools, and uniformly receive their students on the recommendation of the school. Stanford, too, has almost dropped entrance examinations, and admits on probation students who present a personal and specific recommendation from school principals. It is apparently harder to get into Harvard, but relatively easier to stay there than is the case at Stanford.

The small proportion of graduated teachers in the high schools is a serious blot upon American education. Even university departments of education—there are 171 colleges and universities with at least one professor of pedagogy—do not, as a rule, insist upon graduation as a condition precedent to their courses. Brown University alone exacts a graduation standard. In his account of "The Training of Teachers for Secondary Schools" (3), Dr. J. F. Brown makes it clear that the States have much leeway to make up. He devotes his attention mainly to Germany, of whose professional training arrangements he writes a discriminating account. But neither England nor America could at present adopt any system which resulted in the postponement of the age of definite appointments to salaried posts to something like thirty.

### A NEW FRENCH GRAMMAR.

*Cours de Langue Française*. Par Charles Maquet, Professeur au Lycée Condorcet, et Léon Flot, Professeur au Lycée Charlemagne. (Hachette.) Degré préparatoire, 90 c. Premier Degré, 1 fr. Premier Degré Complémentaire, 1 fr. 25. Deuxième Degré, 1 fr. 50. Troisième Degré, 1 fr. 50.

IN our December issue we gave the new Syllabus of Grammar for Primary Schools that had been issued by the French Ministry of Public Instruction. We have now before us the "Cours de Langue Française," by MM. Maquet et Flot, which was commenced in 1909, and,

indeed, led up to the recent decree, and embodies the new ideas on grammar that rebel against the tyranny of mere words. It is a work very different from the Noël et Chapsal or Larive et Fleury of our youth; it carries out for French grammar what has been done for modern languages in France by such books as those of MM. Camerlynck and Roux.

Each lesson—except in the preparatory stage—occupies two pages, so that the whole of it is before the pupil's eye at the same time. This is very useful, as it prevents any turning over of pages. All the lessons are similar in form. Each begins with a piece of French prose or verse—*le texte*—taken generally from a standard author. Then come *Questions et Explications*, first of words, then of ideas, and thirdly of spelling. These ensure the complete comprehension of the text. They are followed by an *exercice oral*, reading of the text, picking out of parts of speech, and such like; and this by an *exercice écrit* along the same lines. These ensure a knowledge of grammar. To extend the pupil's vocabulary are exercises on word-formation, definitions of words, and phrases not found in the text. All this is to be found on the left-hand page.

On the right hand is a complete course of French grammar on the concentric plan in the three courses, accompanied by examples usually selected from the text opposite. At the bottom of this page is a *questionnaire* on the grammar above. In these five volumes—to be followed by two additional volumes of exercises on the advanced grammar—the pupil has a complete course of French from his eighth to his fourteenth year, during which time he has been taught, for an average of an hour a day, how to use his own language. This accounts in part for the exact knowledge that every Frenchman has of his own tongue, and the power he possesses of using it. What a reflection this is on the slipshod methods in our own schools, the headmasters of which squabble about compulsory Greek or Bible teaching and neglect the first essentials of all knowledge.

But what distinguishes this course from others is its new outlook on grammar. The authors wish to destroy that form of grammatical terminology which exists merely for the pride of grammarians and only puzzles the mind of youth. They replace the grammar of words—in which *on se payait de mots*—by the grammar of sense. As such we extend a hearty welcome to this excellent series, and we trust that many English teachers will read these books and try to do as much for our English youth.

DE V. P.-P.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

*E. M. Arndt, Deutsche Patrioten in Russland zur Zeit Napoleons.* Edited by W. A. Colwell. xiv+117 pp. (Heath.) 1s. 3d.—A fairly interesting text, with an introduction on Arndt's life, a map of Germany and Russia with the places mentioned in the narrative, some notes, and a vocabulary. There are some misprints (including two on the title-page!); e.g., *wohlbelebt* (p. 10), *hingeben* (p. 35), *Nachrichte* (p. 36), *fich* (p. 39), *Stadtore* (p. 57). In the notes we miss a reference to certain peculiarities of Arndt's style, and the designation of some words and phrases as no longer in common use.

*Hungarian Self-Taught.* By the Count de Soissons. 112 pp. (Marlborough.) Paper, 2s.; cloth, 2s. 6d.—This

recent addition to Messrs. Marlborough's well-known series forms a convenient handbook to the traveller in Hungary. It has the same features as the other volumes of this series that have at various times been reviewed in our columns.

*Hauff's Märchen.* 56 pp. *Grimm's Märchen.* 48 pp. Both edited by H. Hirsch. (Blackie.) 6d. each.—One of these recent additions to Blackie's Little German Classics contains "Die Geschichte Almansors" and "Der kleine Muck"; the other, "Die drei Männlein im Walde," "Frau Holle," "Dornröschen," and "Sneewittchen." All these stories are well known, and have been edited before. Mr. Hirsch supplies notes, consisting mainly of renderings, which are generally satisfactory. His English is sometimes a little doubtful; "of little quantity" is a curious explanation of *knapp*; on p. 56 of the Hauff we read that a certain ending is met "continuously" in German; "putrefied" is not a good rendering to suggest for *verweste* (Grimm, p. 32 l. 16). As for the grammatical notes, it is not quite right to say "*weigern* with dat. of person"; the statement "*wo* is used for relative pronoun *plus* preposition" is unsatisfactory; the anticipation of the auxiliary in dependent sentences does not "occur only in the compound tenses future and conditional of auxiliary verbs"; and the use of *gucken* and *kriegen* is not confined to south Germany.

*Die bunten Artikel.* By M. Schmidt and G. A. Giles. 148 pp. (Hachette.) 3s.—This little volume contains lists of German nouns grouped according to meaning, with the English and French renderings and German plural forms in parallel columns. The German words are printed in colours: red for masculine, blue for feminine, green for neuter. The idea is fresh, but we doubt whether the association of genders with colours is a valuable one. The authors, who are principals of the German-English School for Girls in Dresden, maintain that in practice they have found that the device answers its purpose.

*Französische Intonationsübungen.* By H. Klinghardt and M. de Fourmestraux. vii+114+35 pp. (Schulze, Cöthen.) 3.80 marks.—We know of no other book in which the very difficult subject of French intonation has been adequately treated, and we are consequently very grateful to the authors of this book for their admirable work. It is true that Mr. Daniel Jones was the first in the field with his clever monograph on intonation curves, based upon English, French, and German gramophone records. The present work, however, gives a systematic account of the intonation in ordinary speech, which is represented very ingeniously by means of points and lines. The book is intended *für Lehrer und Studierende*, but much of it can be applied in the practice of the classroom. We recommend the book very warmly to all who are interested in French phonetics.

### Classics.

*English-Greek Dictionary. A Vocabulary of the Attic Language.* By S. C. Woodhouse. viii+1030 pp. (Routledge.) 15s. net.—We have always found Yonge's dictionary very useful: but it is true that Yonge includes words of all dialects and rarely gives quotations. Mr. Woodhouse confines himself to Attic of the best period: Thucydides, Plato, Xenophon, and the orators, with the three tragedians (excluding lyrics) and Aristophanes. With each word the compiler indicates whether it be used in prose or verse, or both; and there are a good many quota-

tions, with exact references. We have used the dictionary for several weeks, and found it satisfactory within its limits, that is, the limits of Attic Greek. Within these limits of a few authors it is fuller than any other we know of: but it must be admitted that the limits exclude a good deal which we may want to know. It may be that a word by accident does not occur in these authors: "cat," for instance. Here the book gives *αἰλουρος*, adding Herodotus as authority, very properly: but Theocritus apparently calls the cat *γαλῆ*. There are perhaps not many such words, and, as Mr. Woodhouse says, very little composition is done now except in Attic. We should prefer a dictionary of this size to be more complete: but probably the great majority of people will find everything they want in it.

*A Pocket Dictionary of the Greek and English Languages.* By K. Feyerabend. Greek-English. 420 pp. (Berlin: Schöneberg-Langenscheidt; London: Grevel.) 2s. net.—This book contains a very large number of words, including "the authors commonly read in schools" and the New Testament. We give a few rare words to show its scope: *ἀμφισβασίη, γαλῶς, ἐλίκωψ, οὐρανομήκης, πηγός*. But we have looked up a number of words from Aeschylus, and some from Homer, without finding them. It would have been well to say more exactly what the sources are. But although there is not everything here, there is a surprising number, and it will be useful as the scholar's travelling companion. One or two meanings are given to each word; of course no references or quotations.

*Higher Latin Composition.* By A. H. Allcroft and A. J. F. Collins. viii+218 pp. (Clive.) 3s. 6d.—This book contains twenty-three chapters of text, each with an exercise in sentences, and seventy-five pieces of continuous prose about ten or twelve lines long. It is meant for those who have learnt the accidence and the main rules of syntax. It is concerned chiefly, then, with idiom and style. The authors take the period as the normal Latin type, which does well enough for the learner, who finds this type unfamiliar: but he ought to have said that the style suits the writer's aim. For instance, when Cicero wants to explain facts, he uses short, disconnected sentences like ourselves; his periods are for the educated when he is reasoning or meditating, but for the vulgar when he wants to mystify. Livy also has plenty of variety; Tacitus has a different style. Perhaps Caesar alone uses the period to instruct; but he writes for the thoughtful. Apart from this criticism, the book seems to us very clear and useful. The principles of Latin style are well put: and this done, English constructions are taken (participle, verbal noun, infinitive, and so forth), their meanings analysed, and the Latin constructions allotted to each. Large numbers of English examples are given, analysed, and translated. We can recommend this book.

*Caesar's Gallic War.* Translated by the Rev. F. P. Long. viii+278 pp. (Clarendon Press.) 3s. 6d. net.—When we read in this book, we rubbed our eyes: Is this Caesar? Where is his severe restraint, his clear logic, his terse, telling style? Mr. Long has the sense, but the form is that of—we were about to add here the name of a journal eminently respectable, though fond of circumlocution, but we forbear. It is the style of the weekly Press. Yet it has a style: parts are forcible, and we cannot but feel that if Mr. Long would prune his periods he would be very good. As this is so much a matter of taste, let us add a sentence or two. "The country known collectively as Gaul presents in reality three distinct divisions,

inhabited respectively by the Belgae, the Aquitani, and a race which, though commonly described by us as Gauls, is known in the vernacular as Celts. Between these three divisions there exist fundamental differences both of language, customs, and political organisation." Did Caesar speak thus? There are some useful maps, and we must not forget Mr. Long's ingenious conjecture of *animo* for *numero*, v. 34.

### English.

*Poetica: a Book of English Verse for Repetition.* Arranged by J. Ridges. 201 pp. (Blackie.) 1s. 6d.—Mr. J. Ridges has edited one more anthology. The pieces are mostly familiar and all well chosen, the book can be slipped into the pocket, the paper is white and the type clear. The error in Gray's "Elegy," so often noticed in this magazine ("Await alike th' inevitable hour"), occurs again; but it is mainly of the preface we would speak. This book is to be *learnt by heart*, and the editor writes on *learning by heart*. He speaks as if, with Stevenson, Blackie, Macaulay, and other great people—not to mention the present headmaster of Eton—he actually believed in it as an exercise, the result of which means lifelong pleasure and untold benefit. We are with Mr. Ridges: and so, we believe, are the angels. But a great deal of educational practice is against us: the psychology books are against us; and, in primary schools, the Board of Education is, on this subject also, wobbly. The editor thinks the practice of learning good verse is coming into vogue again; we wish we could agree. Neither the Bible, nor Shakespeare, nor Macaulay, nor Tennyson is memorised; and if we wished to set a paper in which lengthy quotation should get good marks, we would choose music-hall ditties and the last pantomime. Can it be that there is coming instead a distaste for the Bible as antiquated, for Shakespeare as aristocratic, and for all good verse-memorising as high falutin and useless, and as a luxury of the well-to-do, the distaste being supported by the unwarranted statements of psychologists that our memories die off at the age of fourteen? Persons who watch may say the shadow is already on us. If so, we need people who will not parley with such doctrine.

- (1) *The Relief of Chitral.* By Captain Younghusband and Colonel Younghusband. 232 pp. (Macmillan.) 1s.
- (2) *Mungo Park's Travels.* (Herbert Strang's Library.) 256 pp. (Frowde.) 6d.
- (3) *Stories from the Arabian Nights.* (Senior Series.) 141 pp. (Longmans.) 8d.
- (4) Nisbet's Supplementary Readers: *Six Months at the Cape* (Ballantyne), 191 pp., 8d.; *A Young Stowaway* (Corbett), 224 pp., 8d.; *The Argonauts* (Kingsley), 128 pp., 6d.; *Captain Cook* (Ballantyne), 102 pp., 6d.; *Chasing the Sun* (Ballantyne), 111 pp., 6d.

A bundle of good reading books lies before us, all except one being old. That one is "The Relief of Chitral," which, though not intended for schools, would make an excellent book for higher classes. Modest, manly, and thoroughly interesting is the narrative of Colonel and Captain Younghusband. "Mungo Park's Travels" is issued in Herbert Strang's Library, of which we should like to have a list; the book is very cheap, and can be put in a schoolboy's pocket. Messrs. Longmans' Continuous Readers are always good. "The Arabian Nights," Senior Series, is excellently printed and illustrated. Messrs. Nisbet send five books that will delight the reading child; the names of Ballantyne, Corbett, and Kingsley are still names to conjure with.

**History.**

*The New Europe.* By R. W. Jeffery. xii+401 pp. (Constable.) 8s. 6d. net.—The chief characteristic of this book is its clearness. Mr. Jeffery tells in somewhat more than outline the history of Europe for a century beginning with the outbreak of the first French Revolution. There are no footnotes in the ordinary sense of the word, but everyone mentioned in the text is briefly described in proportion to his importance at the foot of the page, with dates of birth and death, &c., thus giving a clearer cut image of the man than a mere mention of him in passing would afford. At the end of each chapter there is a short and well-selected bibliography, and the most useful books are marked with an asterisk. The fourteen maps are unencumbered with more names than are necessary for the understanding of the text, and cannot fail to impress themselves on the memory. There are many lists of events with dates, and the reader is helped to synchronise his information with events in British history by similar lists provided for most of the chapters. There are also lists of sovereigns, pedigrees of reigning houses, and an index. But the feature which struck us as, so far as we know, unique in historical literature, is the series of diagrams, in which the causation of events is represented by quasi-genealogical trees. Never since the priestly contributor to the Pentateuch gave geography under the form of genealogy has this form of summarising information been so aptly used. A careful study of these diagrams will do more for the reader to understand the complex problems of the "new Europe" than pages of ordinary texts. Once we found an "Emperor of Germany," and once Mr. Jeffery's printer has played him false. But we heartily recommend the book to all students of the period.

*The History of the English Bible.* By J. Brown. viii+136 pp. (Cambridge University Press.) 1s. net.—Dr. Brown is not so much at home in this subject as he is in English Church history of the seventeenth century, but the ordinary reader will be quite satisfied with this little sketch of the history of the English translations of the Scriptures issued "occasionally" in this year of celebration. Quite as interesting as the text are the ten plates, in which are represented pages of the manuscript Bibles or title-pages of printed Bibles. These are much clearer than the average of such reproductions, and will be worth study under a magnifying glass. Dr. Brown begins earlier than Cædmon, and brings his story down to the publication of the Revised Version of 1880-4. There are a bibliography and an index.

*The Past at Our Doors.* By W. W. Skeat. x+198 pp. (Macmillan.) 1s. 6d.—Mr. Skeat is the son of our first authority in the history of the English language, and he has spent some time in the Government service in the Malay States. That will account for many of the features of this well-written, gossipy book. His sub-title is "The old in the new around us," and by the aid of etymology and a good deal of antiquarian research he helps us to understand the history of the present form of our dress and houses, and the ways in which we get our food. There are many interesting pictorial illustrations, some of them being obtained "by the courtesy" of private friends. Altogether a most delightful book.

**Mathematics.**

*Algebra.* Part II. By K. P. Chottoraj. iv+486 pp. (Chottoraj.) 1 ru. 12 an.—This book, the author of which is a professor in the City College, Calcutta, is intended to meet the requirements of students preparing for the Intermediate and Previous examinations of the

Indian universities. The ground covered extends from quadratic equations to the exponential and logarithmic series, and the method of treatment seems well adapted to give the learner a thorough drilling in the application of the fundamental principles of the theory to the solution of problems.

*Practical Mathematics.* By Thomas Barr. viii+232 pp. (Blackie.) 2s. net.—This manual is intended for the use of artisan and engineering students. The several sections deal with geometry, algebra, graphs, mensuration, logarithms, trigonometry, and the book as a whole is very compact and the arrangement good. The proofs of the geometrical propositions are much more satisfactory than is generally the case in works of this type, and the same may be said of the section on mensuration. Graphs and logarithms are treated fully, but the section on trigonometry is somewhat slender.

*Analytic Geometry.* By N. C. Riggs. xii+294 pp. (New York: The Macmillan Company.) 6s. 6d.—We have here a simple and straightforward introduction to the geometry of curves and surfaces by the methods of analytical geometry. The equations are obtained and discussed in their simplest form, use being made of the calculus in dealing with tangents and normals. There is nothing involving algebraic analysis of a complex character. The book contains just what an ordinary engineering student requires to know about this subject.

*Theoretical Geometry for Beginners.* By C. H. Allcock. Part I. xii+125 pp. 1s. 6d. Part II. xii+204 pp. 2s. 6d. (Macmillan.)—In this new edition of a work first published eight years ago, several alterations have been made. A few unimportant propositions have been omitted, and their place taken by others which seem more worthy of the position. In some cases alternative proofs and fuller explanations of difficult points have been added. The matter contained in Part I. corresponds to Euclid I., and that in Part II. to Euclid II.-VI.

**Science and Technology.**

SATISFACTORILY drawn practical constructions in geometry and fine smooth curves as the result of graphical exercises are only possible when a suitable pencil is employed. Where good hard leads, such as those of the *Koh-i-noor pencils* manufactured by Messrs. L. and C. Hardmuth, Ltd., are used by a pupil, the teacher has a right to put down inaccurate and clumsy construction to carelessness, and knows how to act; while with inferior pencils it is difficult to distinguish between faults due to bad tools and those resulting from indifferent workmanship. But since the "Koh-i-noor" pencils are made in seventeen degrees of hardness, they are suitable for a large variety of purposes in addition to geometrical work, where delicacy of touch is essential. For ordinary writing these pencils are remarkably economical, outlasting as they do several ordinary leads. To possess a "Koh-i-noor" pocket propelling pencil, which can be secured in a variety of pleasing designs, is to have ready always a pencil which makes writing a pleasure. Though the widely used "Koh-i-noor" pencils cost 4d. each, they are very economical; but to meet the needs of schools, the same manufacturers have produced good pencils at one penny and twopence each. They have also put on the market chalk pencils in various colours, and rubbers which can be safely used with delicate papers.

*Elementary Chemical Theory.* By J. M. Wadmore. xii+275 pp. (Methuen.) 3s. 6d.—The author of this small manual is not the only person who has discovered how difficult it is for beginners to obtain a connected idea



of theoretical chemistry from various chapters scattered here and there throughout a descriptive text-book. This book, based on the author's lecture notes, will be certain to find a welcome, as it is one of the very few which include practically all the theoretical and physical chemistry advantageously taught in schools; it may even be sufficient for the needs of many students proceeding to a pass degree. It contains, first, a useful account of the fundamental laws of chemical composition, rather more full than is customary in books of the kind, followed by descriptions of the atomic hypothesis, of the determination of atomic and molecular weights, and of the periodic law. After chapters on formulæ, molecular and structural, the author passes to the gas laws, the kinetic hypothesis, and the properties of pure liquids and solutions, and concludes with a brief account of the ionic hypothesis. In much of what has been mentioned, especially in the physical chemistry, the usual lines of exposition have been followed; indeed, the author expressly acknowledges his indebtedness to the standard works on the subject; but he deserves praise for his determination to lay stress on "the elementary and the obvious," since, as he says, "with beginners the obvious is just that which usually presents the most difficulty." Chapters xi. and xiii. deserve special praise as containing much recent work which in some cases has hardly found its way into more advanced text-books. The writer is sorry to add that he could find no account, barely a mention, indeed, of the important subjects of catalysis, dissociation, and balanced actions. With the exception of this defect, which may be remedied easily in a future edition, the book may be recommended as forming an excellent introduction to the subject.

**Introduction to Practical Organic Chemistry.** By A. M. Kellas. viii+204 pp. (Frowde and Hodder and Stoughton.) 3s. 6d. net.—This volume—the third of a series of practical manuals published during the last twelve months—is adapted specially to the requirements of medical students. It contains the organic chemistry needed for the Preliminary Medical examinations of most examining bodies. After an introductory section, which describes the preparation and reactions of some sixty typical organic compounds, there follow schemes for the identification of the substances mentioned in Stages i. and ii. of the Board of Education examination, and also for the detection of the group to which the unknown substance belongs. Later in the book an appendix deals with the special substances in the syllabus of the London University Preliminary Scientific examination. The other section describes the principal methods of quantitative organic analysis, and the determination of molecular weights. The book will doubtless be found useful for the class of students for which it is intended, especially as it brings together in a compact form a mass of information which must usually be sought for in various volumes.

**A Class Book of Chemistry.** By G. C. Donington. 399 pp. (Macmillan.) 3s. 6d.—In his preface Mr. Donington refers to the difficulties found in adopting the "heuristic" method of teaching experimental science to large classes of students. The present work aims at providing a practical course, combined with the requisite theoretical and descriptive text, necessary for Matriculation examinations of London and other universities. In all sections to which experimental work is appropriate, the student is given brief but sufficient instructions for carrying out a logical sequence of simple experiments, from which he is encouraged by questions to deduce his own conclusions; this is followed by theoretical matter relating

to the known facts of the subject. The quantitative aspect is encouraged in all cases where it may be desirable. The book commences with chapters on solution, crystallisation, the physical properties of matter, and the purification of substances. After this the chemistry begins, with chapters on acids and alkalis, phenomena of rusting, hydrogen and water, marble, carbon and its oxides, &c. Discussion of the atomic theory, molecular and atomic weights, chemical equations and calculations, is reserved to a later portion of the book. Each chapter terminates with a selection of general questions and further practical exercises; and, at the end of the book, are given a number of test papers and typical examination papers. The volume is most appropriate for classes in secondary schools and for junior classes in technical schools, and it possesses the advantage of meeting the requirements of both class-room and laboratory. The experiments are quite simple, and frequently exhibit novelty of method combined with improved efficiency. The illustrations are excellent.

### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

#### The British Association Meeting at Portsmouth.

THE organising committee of the Educational Science Section of the British Association will be glad if you can insert a note with reference to the forthcoming meeting of the association.

The British Association will meet this year at Portsmouth from August 30th to September 6th under the presidency of Sir William Ramsay, K.C.B., F.R.S. The president of the Educational Science Section will be the Right Rev. J. E. C. Weldon, Dean of Manchester, sometime headmaster of Harrow. It is proposed, among other subjects, to devote a session to the results of psycho-pedagogical research, with particular reference to the education of defective children. There will be a discussion on technical and professional education under the Admiralty, and also on dockyard schools and on the place of examinations in education. The question of the overlapping between secondary schools and universities and other institutions of higher education will form the subject of a report from a committee of the section which has been meeting during the year, and the report of the Joint Committee of Educational Societies upon grammatical terminology will also be discussed.

The secretaries of the section are Mr. W. D. Eggar, Eton, and Mr. Hugh Richardson, Bootham School, York, and offers of papers on these or other subjects should be made either to them or to the recorder, Mr. J. L. Holland, County Education Offices, Northampton. Offers of papers, as a rule, can only be accepted from members or intending members or associates of the association.

I may add that the list of speakers upon the various subjects has not yet been settled, but that I hope to address a further communication to you on this point in time for your July issue.

J. L. HOLLAND (*Recorder*).

#### Some Aims in Geography Teaching.

RECENTLY there have been many complaints as to the vagueness of the term geography. In the reaction against the sawdust teaching of old times, enthusiasts have

brought within the bounds of the geography lesson nearly every department of human knowledge. The confusion has arisen through not perceiving that geography is not pure science; it is an applied science. It has been defined as the summing up of all the sciences. I would say that its scope is to study the effects of natural phenomena upon human life. These two definitions imply that systematic instruction in the various sciences should not be given in the geography department, but that there the knowledge amassed elsewhere should be correlated to human life. It is as out of place to give instruction in physics in the geography syllabus as it would be to teach the theory of the differential calculus in an engineering laboratory.

To justify its place in the school curriculum takes one back to the fundamental aims of education. The first, and generally admitted the most important, is to develop the character and faculties. Geography, as I shall show later, develops the power of observation and the reasoning faculty, and can be made to cultivate the imagination. On this ground, therefore, it has a stronger claim to inclusion than most other sciences.

But education has further practical aims: it should fit the human being to be a good citizen; it should open to him sources of pleasure; and it should fit him to earn his living. As to the first of these, the service of citizenship or economics is closely bound up with geography. Economics is the psychology of the community; geography is the physiology. Commercial life cannot be understood without a careful study of both, any more than the individual organism can be studied without a knowledge of both mental and physical phenomena. Of the value of economics no one can have any doubt, and to prepare for it is the function and justification of the teaching of geography.

The question of the curriculum is complicated. Correlation with the other subjects is absolutely necessary, and a complete syllabus should show this correlation. Broadly, it may be laid down that the beginners should be occupied with the home region, studying the subject in the field and not from books at all. In this part of the course the faculty of observation receives more training than in any other, and in this heuristic methods should be rigidly followed. So best can a firm grasp of the fundamental principles of our science be obtained.

When the time comes for study of more distant regions, both teacher and pupils are faced with the difficulties and mental jar produced by a necessary but abrupt change of method. The practical laboratory methods followed hitherto must obviously be abandoned, and yet we must not abandon scientific methods altogether. We can no longer hope to give much training in and scope for observation, but that loss is compensated by the magnificent field for the exercise and development of the deductive and reasoning faculties which our subject affords us. My aim last month was to show how the study from books and by hearsay of a distant country can be undertaken on scientific lines. I wish now to justify the different steps on other grounds.

Simple geology should be the foundation. This is not a subject usually included in a school time-table, nor is it ever likely to be so; such instruction in it as is necessary must be given in the geography class. Children will find no difficulty in understanding such maps as those supplied in Mr. Ellis Heaton's "Scientific Geography" (Ralph, Holland and Co.). The broad, simple principles of the relation of geology to scenery should be taught as well as the geology of agriculture. Scientific development of

the subject demands that we begin thus at the foundations, but if any further justification were needed the pleasure it yields the children should suffice. They will rejoice and wonder at the track of the glacier on the mountain side or the work of the river in the valley to a degree that few natural phenomena can arouse. Not only so, but a foundation will be laid of an ending pleasure. It is perfectly true that we can appreciate the mountain glory without a knowledge of the mountain story, yet such knowledge would have increased the pleasure a thousand-fold. No one who has studied such books as Sir A. Geikie's "Scenery of Scotland" has ever again found a railway journey tedious. Ruskin himself, who held no brief for scientific studies, considered a knowledge of geology absolutely necessary for the landscape painter, therefore surely for a proper appreciation of his works; and if necessary to a proper understanding of nature's portrait, it is at least equally necessary for a proper appreciation of nature herself.

Following the study of the physical features arising out of the geology comes climate, than which is no department of geography more important for its effect on human life and its bearing on economic questions. Furthermore, it is a science which is intimately connected with the child's daily life; it affords a valuable bridge between the physics laboratory and the work-a-day world, and it gives ample scope for the further development of the faculties of observation and deduction.

The study of the effect of natural phenomena on the localisation of industry I would justify on three grounds. It is necessary for practical life to know the chief centres of human activities, and only by carefully keeping the why and wherefore in the foreground can we prevent the acquirement of such knowledge from degenerating into a parrot-like learning by rote. The "reason why" is needed, moreover, as an aid to memory and to keep up the interest. Secondly, it trains the faculty of reason. Thirdly, it is of absorbing interest. Our best "speech days" have been those devoted to this subject. The most fertile discussion we ever had was one based on a table showing how density of population varied with occupations (see "Physical and Commercial Geography," by R. S. Tarr and others (Ginn)).

Having now dealt with causes and their immediate effects, we come to the study of the world as it exists to-day, which we pursue by means of photographs, picture postcards, and word pictures. This part of the course, experience shows me, is not found interesting by the majority of the children. Very young children are keenly interested in foreign travel, but the interest dies out as they grow older. This fact is made use of by the authors of "The Teaching of Geography in Elementary Schools" (Blackie). In the admirable course they outline a year of telling about strange places precedes the study of home geography. It is not a strictly scientific method, but it has the enormous advantage of utilising the child's natural interest and strengthening it.

The number of years devoted to the subject will vary with the class of school. Frequently the last year is given to the British Empire. A more fitting coping-stone would be a year devoted to the elements of civics and economics. In any case, the end of the geography course should see the child equipped with a knowledge of great use in practical life—with a firm foundation for the study of economics and with an enduring love of nature. One of the chief aims of education—one too often neglected—is to sow the seeds of future pleasures. Much of the misery of the world is caused by people not knowing how to play.

Many young men get drunk on a bank holiday simply because they do not know what else to do. We shall have gone far towards solving many social problems when we have taught our young men that the proper tool of enjoyment is not alcohol or the price of admission to a football match, but a geological hammer or a vasculum.

If people have no instinctive interest in nature, all the more reason why those who have, and therefore know the intense and abiding joy, independent of outward circumstances, which it yields, should seek to impart this source of joy in the hearts of others. If learning geography can awaken an interest in nature, that fact alone would justify its inclusion in the mental food served out to the child, for a love of nature is the most desirable thing a human being can possess. There is nothing that can keep as it can

"A bourn quiet for us and a sleep,  
Full of sweet dreams and health and quiet breathing."

EDITH DOUGLAS MORRISON.

St. Bride's School, Edinburgh.

### The Teaching of Geography: A Protest.

As you have directed attention to the L.C.C. report on the teaching of geography in elementary schools, I am impelled to protest as emphatically as I can against one recommendation in an otherwise excellent piece of work. The report as a whole is so valuable that it is a mystery how the particular recommendation came to be inserted, but just because the report as a whole is good this recommendation is likely to have all the more harmful effect.

We are asked to allow mountains to be represented in tests and examinations by lines: it matters little that there is a qualification that the lines may be thickened and broken, or that it may be argued that it is only in tests and examinations that this is to be allowed. It is obvious that the recommendation really amounts to an instruction that pupils are to be told to show mountains as lines.

If pupils have really been taught geography and seen for themselves in pictures or otherwise what mountains are like, if they have learned that highlands are areas, about the last thing in the world that would enter their heads would be to represent mountains as lines. They know that the hills they have seen—unless, perhaps, they have seen the Hog's Back—are not lines. Why should it enter their heads that the Welsh Highlands or the Scottish Highlands or the Deccan or the Cordillera, which they have not seen, are lines? They must certainly be told so to represent them, though how one can represent an area by a line is a problem of practical mathematics for which my training gives me no hint of a solution. This is immoral enough if the children really know that highlands are areas; but what if they do not know? To teach them to represent mountains as lines is surely much worse in this case.

Now why should pupils be taught things that are obviously wrong—obvious to the educated, that is? The whole aim of modern geography is to give a correct living idea, as nearly as we can under the difficult conditions of the class-rooms, of the real appearances of things. Prof. Armstrong says, in effect, that if we cannot do this out of doors we should not do it at all: he prefers no bread to the proverbial half loaf, which he calls sawdust. This point of view does not here concern us, for it is assumed that the poor pupils not only are to be taught something

called geography, but also examined on what they know. If that is so, we must surely do our work in the best way possible in the circumstances. Is it the best way to teach them that mountains are to be represented as lines in tests or examinations or anywhere else?

There may be objections to the representation of heights roughly by one mass of colour or pencil shading, but at any rate the method represents highlands as areas on which folk may live without falling off either side, as areas on which grass may grow and sheep may feed. If anyone can suggest a better method, by all means let us have it; but that better method has not been suggested in the report or elsewhere.

Further, the question suggests itself, "What is to be shown on these test maps on which highlands are thickened broken lines?" Rivers? Do all rivers flow over plains, with nothing to suggest change of height? Routes? How can maps show the routes by the Rhone Valley or the Hudson-Mohawk or 90 per cent. of the natural land routes of the world if valleys are not shown? Towns? What is the position of New York or Marseilles, Calcutta or Rome, or 90 per cent. of the great cities of the world without the valley ways and plain ways? Cultivation? Coalfields? The position of these really means position relative to certain areas of dominant elevation, and without these the "position" means nothing; and it is only if the test map shows that the pupils know the relations of these facts that the map is of any real value.

The bogeys of "difficulty" and of "time" are no more to be feared than are the scarecrows of the fields. If the children are introduced from the beginning to the representations of heights that they know as areas, whether the height be Tower Hill or Parliament Hill, there will be no difficulty, and it is really a saving of time in the long run. Of course, it takes longer to learn and to represent the real extent of, say, the Pennines than to draw a broadened line with two (?) breaks to represent "passes"; but when the pupils know the extent of the highlands, they know half the geography of the north of England, and the other half, from coalfields and cultivation to routes and towns, or even counties, is so easily learned that the process can scarcely be called learning; and if the extent of a highland is really known, it can be shown with a very fair approach to exactness in a few seconds.

It is obvious that the members of the conference did not think much of the broken-line method, for there are also recommendations as to large-scale maps and exercises on map interpretation. Is one of these exercises the interpretation of broadened broken lines? It requires a considerable amount of imagination to read even a good map, but I fancy it would take the combined imagination of all the members of the conference to visualise anything like the real thing from a map of Scotland with a broadened broken line to represent the Highlands. We must assume that the children are to be taught area methods in addition to the line method; but why are they to go out of their way to learn something wrong?

After all, is this a recommendation to teachers or is it a hint to examiners to deal gently for the present with bad maps? Is the real recommendation to teachers contained in the reference to large-scale maps? It is to be hoped that this is so; but in that case I fear each class will read the recommendations intended for the other. For the peace of mind of all teachers of geography, it would be as well to have the matter cleared up.

J. FAIRGRIEVE.

William Ellis School, Gospel Oak, N.W.

### The Englishman in Exile.

THE Englishman in exile on the continent of Europe forms a far more numerous class than most of us realise. You find him in every city and large town, from Madrid to Moscow, from Christiania to Constantinople, and the history thereof would provide material for many a romance and not a few tragedies. Apart, of course, from the hundreds of men employed abroad on Government service, on business, and so forth, there still remains a large army of stragglers, wasters, and adventurers. We meet, for instance, the English "baronet" or "titled lady" whose main occupation appears to consist in swindling hotels and boarding-houses. Who these people really are, and how they contrive to evade justice, remain a mystery.

The Englishman residing abroad is seldom or never assimilated into the foreign element. He remains English to the end, speaks the language of his adopted country with a decided accent, and is respected, laughed at, and feared. In the English homes abroad you generally find the inmates attempting the well-nigh impossible task of living in their native style—a pathetic desire to create, as it were, a little British territory in the midst of the strangers. Other people may change their nationality, but the Englishman never does. The pride of race within him is too strong, and he will not sell his birthright, however tempting may be the mess laid before him.

It is, however, more especially of the teacher abroad that I am now thinking. With the notable exception of some few men and women who have a definite appointment—lecturers at universities and so forth—the majority of the teachers abroad are silently suffering and struggling against the inevitable. Sometimes they have left England beguiled by the promises of so-called schools of languages, forgetting, or in ignorance of the hard fact, that however easy the exodus may seem, the return is fraught with difficulty, if not almost impossible. Ask the English consuls, and they will tell you the same weary tale of misguided ambition, of wasted years, of piteous appeals for assistance. It may be that some of the unfortunate ones scarcely deserve a better fate, but it is evident that far too many able teachers give the best years of their life in thankless toil, and then find themselves a drug in the market, too old for employment at home, and decidedly "not wanted" abroad.

A little consideration will show that the proprietors of the establishments to which I now refer find it to their interests to change teachers as often as possible. So soon as the newcomer begins to settle down—and especially when he begins to acquire the foreign language—he is told to go. As a rule, the salary is so low as to make saving an impossibility, and without money, without friends, without the least security of tenure, his condition may be imagined. Nor is a return to England always an easy matter for a man who finds himself stranded in some distant foreign city.

Young teachers cannot too often be warned of the dangers and pitfalls that await them abroad. At first, with the glamour of the newcomer upon them, they find themselves courted by the foreigner, who is, naturally enough, anxious to learn English without cost. Later, when the novelty has worn, they are neglected and lonely—how lonely an Englishman or Englishwoman can be in a foreign land only those who have experienced it can tell.

I have in mind an elderly man, who may frequently be seen walking in the streets of a certain continental city. He is a graduate of London University, and went abroad,

when quite a young man, in response to the wily advertisement of some blood-sucking foreigner. He has struggled for years, and earns just enough to keep body and soul together. Return to England is out of the question; and this is only one illustration out of hundreds that might be given as a warning against this evil system.

More could be written from the experience of many years, the stories of English chaplains, consuls, and so forth. We could tell of English subjects who were reduced to beggary, of teachers who fell ill in a foreign land and lay for months in the workhouse infirmary. Enough has been said to show that for all teachers who think of accepting a teaching post abroad—*unless they have considerable private means*—the best and only wise counsel is that once given by Punch—"Don't."

HOLMIA.

### British School Teachers and New Zealand.

THE following resolution may be of interest to British school teachers.

"The Hawke's Bay (New Zealand) Education Board approves the principle of exchange of teachers between New Zealand, America, and England, and would consider favourably an application from any of its teachers for leave of absence to enable them to accept temporary employment in any of these countries, and would, moreover, endeavour to employ a limited number of recommended teachers from these countries."

Mr. Payson Smith, Superintendent of Public Schools, Maine, U.S.A., has given a hopeful reply to the above proposal.

Teachers desiring employment in New Zealand should write first to the chairmen of the various Education Boards of this Dominion, as each Board engages its own teachers. There are thirteen Boards, governing 2,000 public schools.

The addresses of the Education Boards are: (1) Wellington; (2) Wanganui; (3) Auckland; (4) New Plymouth; (5) Westland; (6) Grey; (7) North Canterbury; (8) South Canterbury; (9) Otago; (10) Nelson; (11) Marlborough; (12) Southland; (13) Hawke's Bay.

Simply address letter to "The Chairman."

S. PEARSON.

48, Nairn Street, Wellington, New Zealand.

## The School World.

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SIXPENCE.

## MODERN LANGUAGE TEACHING.

By T. DYSON, M.A.

The High School, Nottingham.

THE old school of modern language teaching is now for all practical purposes dead; the old method is gone without fear of its re-appearance. Boys no longer sit at their desks, and after learning a few rules of grammar set to work to translate the exercise—A. French into English; B. English into French. No attempt was made at even an approximate pronunciation, and conversation in the foreign tongue was not even dreamt of. Why was such a method ultimately doomed to failure, although it was hallowed by time and sanctified by tradition? The answer is evident. French and German were not treated as living languages, and spoken languages can never be taught soundly and adequately by methods that may be perfectly justifiable in the case of dead languages. Here, even in method, we see the spell of the classics. Still, let us try to be fair. Was there any virtue in this old method? Possibly; but the vices were far more numerous. It has been said that under it—

(i) Boys had to think for themselves, and they did get some sort of mental training.

(ii) They *did* know the rudiments of grammar.

(iii) They *could* write a fairly presentable sentence in French or German.

(iv) The upper forms read some standard literature.

In each of these four cases there is a covert attack on the new method, but we shall return to this later. As one of the old brigade said to me, "Hang this oral method; give a boy a good grounding on the old lines and send him to France and Germany if he wants to acquire a good pronunciation and fluency in conversation." But the average boy has no wish to go to either France or Germany, and under the oral method he would at least have a flying start should the opportunity for such a visit present itself.

No one can deny the soundness of the direct method. It is the natural method, and hence the correct one. Just as a child learns to speak its mother tongue before it can write it, so young boys ought to be taught to speak a foreign language correctly at the very outset of their lan-

guage course. Phonetics, training in the sounds and simple class conversation, ought to form the bulk of the first year's lessons. This brings me to the vital point of my article. Has the direct method been carried too far? Have the advanced reformers attempted too much? Anyhow, it will do no harm to look around and see exactly where we stand.

Carried to excess, the oral method is based on a false assumption—that schoolboys can so forget their mother tongue for the time being that they can even *think* in French or German. I, for one, have yet to be convinced of this. It would require artificial surroundings. Just note the schoolboy's position. His modern language lesson may be sandwiched between an English and a science lesson; everywhere the prevailing atmosphere is English, and only by a stretch of imagination can the modern language master's class-room become "a small but real part of France or Germany." No; this is the essential limitation. An English schoolboy must think in English. Numerous instances might be quoted. Suppose a boy met the word *Kopfweh* for the first time. By a series of facial contortions the meaning may be made clear to him. But what is the thought that flashes across his mind? Surely it is "headache." Then why not save the time and give him the meaning where necessary. I am quite prepared for a host of objections; but struggle as best you can, give the pupil the opposite of the required word, use it in easy, short sentences, and so on—at the end it is the English idea that strikes him.

The mistake seems to be that too much has been made of the parallel between the truly natural method by which a child learns its mother tongue and the half-natural and half-artificial method of the "direct" lesson. There must be that element of artificiality. Mere childlike imitation must cease after the first stage is over; books must be introduced, and fresh difficulties arise as we proceed. Few of us are so gifted that we can say with Montaigne (making the necessary alterations), "Sans art, sans livre, sans grammaire ou précepte, sans fouet et sans larmes j'avais appris du latin, tout aussi pur que mon maître d'eschole, . . ." and this was in the closing years of the sixteenth century.

Here is another problem that the oral method

has failed to solve—at least, such is my experience. Has anyone succeeded in making any adequate progress with a class of backward boys—boys of low intellectual powers? Take a large school with A, B, and C Forms. I refer now to the C Forms, and I have in mind a particular IV. C with which I wrestled for two years, and then petitioned to be relieved of them. Here the oral method breaks down. There are two alternatives: very childish, elementary oral work suitable for a first Form, or to use a text-book purely and simply for translation purposes. In the same category comes the dull boy, who in some way or other has found his way into a B or even an A Form. He comes day after day with the same fixed expression, having understood nothing and answering to every question with the everlasting “*Oui, monsieur.*” (A random shot sometimes suggests “*Non, monsieur.*”)

Finally comes the very serious question, Has the oral method lessened the educational value of the modern side education? It is a question that has to be faced, and is fraught with serious consequences. There does seem to have been a sacrifice in the mental training of the boys. In the early stages there must inevitably be much parrot-like repetition when everything is based on imitation. The early text-books are purposely made ridiculously easy, and the master takes courage when he sees row after row of smiling faces eager for the next lesson. Of course, this is as it should be. But watch these same boys when called on to face more difficult books and more difficult work later. What different expressions we see! Is it the fault of the system which calls for little thinking on the part of the boy? Again, at a later stage, how often examiners have to complain of the inaccurate, slipshod, and careless papers they have to correct. But from my point of view the neglect of great literature in the senior forms is most regrettable. Surely mere practical skill in French or German is not the all in all of education. We must insist on an element of culture which is best derived from the great writers.

So far my criticism has been mainly destructive, and readers will be surprised when I frankly admit I am a firm believer in the oral method as the only satisfactory way of teaching modern languages. My criticism has only assailed the extreme tendencies of the movement, which in itself is excellent. With the very best of intentions the extreme reformers have tried to do too much. We must take the schoolboy as he is, and not as we should like him to be. There are certain essential limitations which it is foolish to attempt to overstep. Perhaps the following scheme will make my position more clear.

In the early stage the greatest care should be given to the pupil's pronunciation; his tongue must be accustomed to the new sounds, and here a course in phonetics is all-important. Only in this way will he get rid of his false intonation, his Anglicanisms, &c. The time spent over the phonetic script will be amply repaid later, but special care must be exercised in the transition

from the phonetic to the ordinary script. At first there need be no text-book and even no exercise-book—only the spoken language in its simplest form. Every aid may be used to give concrete expression to the subjects dealt with, such as wall-pictures, a cardboard clock for the time, &c. Later some simple text-book on oral lines would be necessary. No difficulty would arise as yet; even the dullest boy would follow. It is at this stage that the oral method fulfils its natural function. The pronunciation is improved all round; the boys look upon their French or German as a spoken language, and display a keenness for the subject very gratifying to the master. So far, then, so good. But even at this early stage I should never hesitate to give an explanation in English if it seemed necessary; this would often save valuable time. In this beginning stage there would be no difficulty about the grammar; it would be learnt by implication and force of numerous examples. Rules as such would be *absolutely* barred.

Then comes the second stage. Here I should follow the motto that Mr. Siepmann has prefixed to his primary French course: “The co-ordination of conversational, grammatical, and literary teaching is of the greatest interest, for to succeed in that is to establish modern language teaching as one of the most complete instruments of education.” Even now, by *all* means let the oral practice be kept very much to the front; reading, dictation, questions based on the text, with subjects of general interest added as the master thinks fit (in this latter case I have found the series of picture-cards published by Messrs. Bell very helpful). But at this stage it is wise to treat the grammatical side of the subject in English. At any rate, it should first be discussed in English and then, if you will, taken again in French or German as the case may be, and I certainly agree with the practice of writing all grammar questions in the foreign tongue. The following quotation from “*A First Book of German Oral Teaching*,” by A. R. Florian (Rivingtons), illustrates my position: “In the body of the texts I have introduced grammatical rules only sparingly, leaving it to the teacher to draw his pupil's attention—*preferably in English*—[the italics are mine] to such points of construction as occur.”

It is at this stage that the difficulties of the oral method really begin. There are many admirable first-year text-books, but how few good second- or third-year courses. The gap between the first-year book and the second-year book is generally far too wide, and the growing enthusiasm of the young learner is stopped at a very critical period. It is all-important to keep conversational lessons well within the range of the class, and once a Form gets out of its depth it is misery alike for master and boys. Again, a book ought not to be overburdened by somewhat difficult exercises, such as pieces of continuous prose introducing every kind of construction, even though these may be based on the text. If the aim of the oral method is to be “rapid and correct repro-

duction of the pupil's thoughts in the foreign tongue," then the subject-matter of conversation should be graduated carefully so that the progress may be well defined and continuous.

Elementary readers ought not to be overburdened with notes in the foreign language. It is so much wasted time trying to explain an elementary text by means of notes in difficult French or German. Notes are often overdone, and the language of the notes frequently adds to the difficulties of the book and certainly distracts one's attention from the story. "The book is all right, but I hate the beastly notes," is a remark I have heard from boys more than once.

Coming to the upper Forms, we want "an oral system which shall lead ultimately to a literary knowledge of the language." Here an important part will be played by free composition exercises. Subjects will be discussed in class, and reproductions in continuous French or German required from the boys. Nor ought prose composition to be neglected entirely, for there is much mental training to be got from a stiff piece of prose. Here, too, much good literature ought to be read; the love for and the study of good books ought to be fostered in every way—rapid reading of many books at the same time as a close study of, say, one or two works. In the latter case attention ought to be given to that side of education which we may call culture, and ought to include, where possible, a course of literature. Take, for example, the study of Schiller's "Ballads." What charm a sixth-form boy ought to find in these gems of thought so beautifully expressed. They may not lend themselves to conversation in the foreign tongue, but at this stage this is not the all-important thing.

In conclusion, I should like to raise a protest against the neglect of German in our secondary schools. No modern language training is complete without it, and so long as French and French alone is the only modern language of any real importance in our schools, so long will the mental training on the modern side be very defective. No doubt French lends itself to oral teaching far better than German. It is more mechanical and needs far less thinking powers. Compare the glut of easy text-books in French with the scarcity of those in German. German is an educational medium of the highest order, and from the complexity of its grammar and the greatness of its literature forms a mental training not a whit inferior to that afforded by Latin. How long is the usefulness—nay, the necessity—of the teaching of German to be denied in our schools? Why is it that such a subject is so shelved? Surely the commercial importance of the language is well known to everyone, while from the point of view of culture it is every whit as important as French. Even in schools where German is a recognised subject it is generally taken in a half-hearted way, and not begun until the fourth Form is reached. By this time many of the best virtues of the oral method are lost. It is impossible to spend an adequate amount of time on the preliminary drill

—the sounds, phonetic training, &c. Remember that the boys are fourteen or fifteen years of age, and the methods one would apply to a first Form would be ludicrous now. Nor is this all. Take an average school. The Forms are divided into upper and lower, or A and B. Now the A Forms are always claimed for the classical side. Why should this be? Why should the picked boys always find their way on to the classical side, often against their wish? It is high time that the clear distinction should be made, and that boys who wish to take up German should be given over to a modern Form. So long as the most intelligent boys are put into the A Forms, and so long as these Forms are labelled "classical," so long will German be the subject of the least efficient.

It is rank heresy for a boy in a classical Form to turn his thoughts to German. I know of an instance where it took the combined resistance of the boy and his father to save the former from the clutches of the senior classical master, who saw in him every prospect of a classical scholarship to Oxford or Cambridge. But the boy's father was a business man, and knew what he wanted, and in the end got his way. This is no isolated instance of how German is sacrificed to the cult of the classics. There are, however, hopeful signs that before long German will take its proper place as one of the most important subjects taught in our secondary schools. The study of French is not in itself a sufficient mental training. Some additional language is necessary, and, all things considered, German ought to replace Latin *entirely* on the modern side of a school—anyhow, after the second Form.

## HISTORY AND MENTAL ACTIVITY.

By FRANK SMITH, B.A., B.Sc.

ALL who teach history know something of the special difficulties it offers. In theory it is often claimed to be the spring of all moral good in our scholars; in practice, alas, it is only too often the cause of "howlers" which provide terminal delights for our fellow-teachers and occasional merriment for the larger world. From Herbart to the Secular Education League it is regarded as the true lever of conduct, and the source of those moral ideas which will regenerate our youth; but in the class-room, and especially in examination papers, it is the unhappy cause of statements which are outside all known systems of morality, and of ideas which, did they but lead to deeds, would prove disastrous to many careers!

Fortunately, our whole conception of what history means in our schools is slowly changing, and we are likely to gain a great deal by this evolutionary process. For us teachers, history no longer means the mere record of the past—the tale of heroic adventure, of brave or sordid deed. We are coming to see in it more and more a study of society, a record of the origin and development of our institutions, and how they met the needs of a struggling race. It is a live, moving thing, the tale of the destruction of harmful forces, and



the tale of beneficent movements beginning like streamlets in waste lands, slowly growing and gathering up their strength until they became great cleansing rivers in the nation's life. It is the tale of how man met and meets nature in order to make it tributary to him, and to turn its boundless forces into channels which will enrich his own life. Obviously, it must be less and less a matter of vague memory, and more and more a vital personal experience in the life processes of the scholars. The early problems of the race must be faced again, and how completely this is possible has been shown by Prof. Dewey and others in their provision of a curriculum for young children, in which the activities of prehistoric days form the subject-matter, not so much of instruction as of experience. Children can again meet the first problems of life by cooking food, building shelters, weaving garments and making weapons in the same crude way as our forefathers. They are thus in touch with the concrete and simple essentials of our own civilisation, and are gaining experiences which will be used at a later stage. Local history, too, provides very suitable material. There is the castle hill to explore, the old church to visit, old parts of the town to see, and coins and weapons to touch. Everything is concrete and "dynamic," and no confusion will arise in the scholars' minds. Words will gradually come to stand for clear and definite ideas already acquired through this contact with the actual.

In the second stage, which begins when the age of nine or ten years is reached, the difficulties greatly increase, for "serious" history must be begun, and examinations thought of. It is a period of transition, for though the scholars still need a very concrete presentation of subject-matter, they are also beginning to look for consecutive order and arrangement. The power of reasoning from cause to effect and of making crude generalisations will soon be theirs, and it is this development which must be carefully taken into account, or disaster will ensue. The scholars are still fond of acting, are held by pictures and stories, and choose their heroes with stimulating zeal, but their minds are also increasingly active in a higher way, and, indeed, it is by the reality and vigour of this mental process that the worth of the lessons must now be judged. How can we effectively meet this double need?

There are many methods of keeping in close touch with the concrete. Pictures, historical novels, drawings of historical objects and photographs taken on school excursions and on holidays are all valuable and frequently used aids. More important still, though less common, is the use of handwork. This activity is of the highest value. Correctness, vividness, and interest are all increased by its use. Only the teacher whose account of the Spanish Armada has had the aid of model ships made by the scholars in spare hours knows the delight and reality of it all. The Stuart period in one school at least was made to live again by the construction of models of the buildings in Old Westminster.

Biography, of course, must be the main form of the subject-matter, for it is from the lives of men and women that scholars of this age learn most, as Dr. Arnold pointed out. But the individuals we choose must illustrate something more than the activity of a single person. Each must be the living expression of a national force, the representative of a type of thought, a reference to some important movement. A people's history is not confined to the figure-heads who usually play so large a part in the history lesson. The labourer in his cottage, the monk in his cell, the merchant in his ventures—all must be presented biographically, for they are all essential elements in the whole picture. By studying the lives of typical people on a feudal estate the scholar will come to a clear conception of Feudalism and will appreciate both its virtues and faults. Similarly by learning the details of a typical Puritan's life, he will know what Puritanism stands for, how it arose and what it did. Adopting this principle of choice we shall discard some of the persons who have hitherto been studied, and replace them by many who have been ignored.

Having now presented the facts in as real a manner as possible, and used all the aids which are needful, we must see that the scholars in their turn add something themselves to the study. They must be mentally alert if the lesson is to be a success. They are now acquiring the power of analysing complexities, of rearranging the component parts of a problem and of separating cause and effect, and our lessons must find a place for the exercise of this very important mental development. We must recognise that the growing scholar should play an increasing part in all school work. It is because this fact is so often overlooked that history sometimes becomes the seed of stupidity and the source of mental sleepiness.

There are probably many methods of achieving this end, and the scholar's note-book, used properly, is certainly one of them. It is often a book of which the teacher is rather a little ashamed, and for which the scholars seem to have little use when once it is written up. It is frequently untidy and hard to understand, and not seldom is it abandoned after a hopeless struggle. If it is a mere summary of facts, it may become a real burden to the lesson, and if a summary is required, any one of the many "skeleton outlines" published is far more useful and valuable, and the scholar's own note-book will then be free for such interesting things as will make him return to it repeatedly. It may be used in some such way as follows.

First, all the left-hand pages will be given over to the scholars. If they can discover any information bearing on the subject in hand, they will make an entry. It may be a newspaper cutting, a small picture from some old book or journal, or even a summary from a novel or other descriptive work. If it is to the point and worth knowing, the scholar will receive credit for his activity. He will thus learn that history is a subject of everyday im-

portance, and find that he makes discoveries in the most unexpected places. His most valuable finds will be made known to the others, who will be also informed regularly of the progress of the work. Thus, this individual activity will be made permanent, and will tend to become more and more systematic.

Next, the right-hand pages will contain the record of work done in school. The scholars will copy the exact words of important documents, extracts from speeches and letters, passages from contemporary writers, and short historical poems. The collection will be thus full of colour and life. There are many excellent books now published containing short extracts from the original sources, and these will be used where suitable to the attainments of the scholars. If long extracts are read, the essential points only will be taken down by the scholars and arranged by them in the most striking way. They will thus have practice in the useful art of summarising an important document.

More important even than the activity required to "make" a book of this description is the mental exercise to which it may lead. For the purpose of illustration, let us suppose that a class is studying the reign of James I.—a reign which is less complex than the preceding one, and lending itself little to vivid narration. The important feature of the reign is the feeling for religious freedom and political independence, a concept of fair difficulty for young scholars. From that excellent book, "Memoirs of the Life of Colonel Hutchinson," we have the following striking statement of the Puritan's outlook:

In matters of faith, his reason always submitted to the Word of God; but in all other things the greatest name in the world would not lead him without reason.

This is copied into the note-books. Next, some extracts from speeches made by the King are copied:

Kings make and unmake their subjects, they have the power of raising and casting down, of life and of death. . . . To the king is due both the affection of the soul and the service of the body of his subjects. . . . As it is atheism and blasphemy to dispute what God can do, so it is presumption and a high contempt in a subject to dispute what a king can do.

The ingenuity of the scholars may be tested by inventing a name to describe this policy. After they have grasped the import of these extracts they will be looking forward to a collision. They will learn of the Millenary Petition, the Hampton Court Conference, the Puritan emigrations, and the voyage of the *Mayflower* as the interesting steps of a development towards some stirring tragedy. There will be a note of expectation right on to the execution of Charles, and the point in dispute will be clear throughout.

Then will come the test which decides the value and the reality of the study. Facts have been presented, and, we may assert, understood: the scholars should now be able to organise them and discover the principles of which they are the expression. This process does not necessarily

come wholly at the end: it may have been proceeding throughout. But in some way the scholars themselves should give something to the study. I have known a boy of eleven point out quite spontaneously that the new feature of James's reign is that religious beliefs interfered with men's loyalty to the King, and contrast it with the action of the English Catholics at the time of the Armada. Another suggested that the section might be given the heading "An Age of Conscience." All these generalisations are indications of a healthy mental process, though of course the teacher must guard against generalising from insufficient data. It is a method which adds much interest to the work and encourages individual effort.

Lastly, a few words may be said of the final stage of history teaching, when the scholars have reached the age of fourteen. They should now be able to work more and more independently. Concrete presentation is less and less necessary: the activity must be one of the mind. Essays will be written and a master historian studied, in order that the scholars may learn something of the "science" of history and the meaning of style. They will follow the working of general principles through large periods of time. They may even attempt to conduct some simple piece of research and handle original sources. They must be told little, though they must frequently be guided to the point of discovery.

In this way, throughout the whole of school life, history will be a real living experience, closely connected with everyday life, and leading to wide social comprehension and sympathy.

## THE PLACE OF HANDICRAFT IN THE SECONDARY SCHOOL.

By A. H. ANGUS, B.Sc.

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**P**ROBABLY no circular of recent issue by the Board of Education reaches so high a level of real educational utility, or bears so clearly the impress of ripe judgment, as that entitled "Manual Instruction in Public Elementary Schools." The scanty leaflet, Circular 740, as issued to secondary schools on the same subject, suffers tremendously by comparison. It lacks entirely the note of cheery conviction that marks the comprehensive pamphlet for the elementary school. Instead, we find a tone of almost diffident suggestion and but the thinnest of argument for the inclusion of handicraft in the curriculum. This would be a matter of little moment were the essential importance of manual work as a subject of instruction throughout the school career of a secondary-school boy universally admitted, or even approximately so. This, unfortunately, is far from being the case; much "evangelising" still requires to be done.

Now the growth of manual instruction in the primary schools, and the increased, all-round efficiency of the work there done in this subject

are undoubtedly reacting favourably on the attitude of secondary schools. The fruits of the good working of the subject in the junior schools are demanding its extension in the senior schools. The scientific principles upon which any such system of instruction is based, which support strongly the argument for the invariable inclusion of it in any school course, are practically identical for elementary and secondary school alike. These will be found very clearly and fully set forth in the circular to elementary schools before referred to. In addition to these, other direct and severely practical reasons can be given, harvested as the golden grain of actual experience. These are based in many cases upon the scientific reasons, and in all cases demonstrate their truth and soundness.

Unfortunately, in spite of the admirable increase in the number of schools now taking this subject, there still is, in many cases, a big interval between the handwork of the infants' school and the manual training of the upper standards. This is to be deplored, and appears to point to the fact that acceptance of the principle that handicraft should be included right through any complete scheme of education is extending too slowly. In private schools the subject is very rarely taught at all. Hence it follows that, as a rule, the boy admitted to a secondary school is on a lower educational level in his manual work than in his other subjects of previous instruction.

It may at this point fairly be asked, "Why should handicraft be taught in a secondary school?" "What is its place in the school curriculum?" "What is there in it that makes it of such supreme value?" Very many convincing answers can be given in reply, and these can be grouped fairly obviously—if the classification be not too dogmatically insisted upon—into physical, mental, and moral; or, again, into educational training and instructional or intrinsic value. Briefly stated, and in varying degrees of strength, the direct advantages to be derived from the inclusion of handicraft in a liberal scheme of secondary education are somewhat as follows:

- (i) To teach a boy how to use his hands—how to *do* things—manual dexterity.
- (ii) As a visible means of expression.
- (iii) As a powerful *correlating* factor in the school, and therefore as an indirect aid in the teaching of other subjects.
- (iv) To provide a guide to aptitude, to find out for what a boy is, or is not, fitted, and to provide some training, more or less direct, having in view what a boy is, or is *not*, going to be.
- (v) As a system of training, therefore, in hand obeying eye, and both obeying the mind; of incarnating thought, of developing observation, of expressing the results of observation.
- (vi) It provides a wonderful lever in comprehensive character training, particularly as to thoroughness, care in detail, perfection in the unseen, value and reality of good work as contrasted with shoddiness, superficiality, and sham.
- (vii) Time-table variety and relief.

A little consideration of this long list of reasons why handicraft should be jealously retained throughout a secondary-school course will show that a grouping into intrinsic value, correlative value, and training value follows inevitably and naturally. In this more detailed consideration it will be necessary to refer specifically to the branches of handicraft that may fairly be regarded as suitable for secondary-school work. These are clay-modelling, cardboard-work, woodwork, and metalwork of several varieties. It is admitted that clay-modelling is taken in some schools as an art subject, and that it is in reality usually more associated with art than with manual training. The difficulties of including it under the heading of art, however, are usually much more pronounced than those attending its introduction into the handicraft course, and if correlation in the school be effective, so long as it is included it matters little really under which heading it falls.

**I. INTRINSIC VALUE.**—It is to be emphasised at the outset that the intrinsic value of handicraft in any of its branches, great though it may be, is the least valuable of all the three that are now considered. Nevertheless, any one of the four branches enumerated above is well worth teaching at some stage of the course of a secondary school simply that a boy may know how to model in clay or in cardboard, that he may know how to manipulate wood and metal and to fashion articles from these materials. This appears to be a statement that will at once be admitted without argument. As to whether these subjects are better worth the time spent upon them than certain other subjects included in the curriculum from this point of view alone is open to question; but this would rarely, if ever, be the sole *raison d'être* for the existence of manual work in the school time-table.

**II. CORRELATIVE VALUE.**—We now approach a much more vital use of handicraft in education. Correlation is far too rarely attempted in school-work. No system of education should consist of a number of separate subjects shut off into watertight compartments, each independent of all the others, and none taking cognisance of the existence of its neighbour. Few subjects offer a finer field for effective and far-reaching correlation than does handicraft. Consider the bearings in this direction of each branch of the subject.

(a) *Clay-modelling.*—Here we have an immediate intrusion into the realms of art, and to a less degree into the domain of geometry as well. The first faculty that must be stimulated and trained is that of observation, and if this conveys the suggestion that some help in training for science work will here be forthcoming, so much the better. Immediately accurate observation has begun, it must be followed by expression in the plastic medium, and accuracy herein depends upon growth of manipulative skill. Clear and rational conceptions of solidity follow as a matter of course, and it is to be remembered that the step from familiar dealing with plane figures to accurate realisation of objects of three dimensions is never an inconsiderable one in the educational his-

tory of the child. Here we have favourable reaction for work in art primarily and also in geometry and future work in handicraft.

The boy should be taught to model, so far as possible, by the senses of sight and touch alone. Mechanical measuring should be avoided, and modelling should be direct from actual objects as a rule, and not from drawings. Either the models or the objects themselves may afterwards be used as drawing models—the latter preferably, for it is never good to give opportunity for the reproduction of inaccuracies—and if the respective teachers of handicraft and art will collaborate a good scheme of work can be produced which will furnish sound teaching in both subjects. It forms an excellent stimulus, and further provides a useful bit of instruction, if the boy producing the best model be allowed to make a mould of it in plaster of Paris and to cast therefrom a permanent model in the same material.

(b) *Cardboard-work*.—In addition to excellent training in patience and manipulative skill, this subject is always worth teaching solely for its value in practical mathematical work. When properly taught—that is, when careful development and drawing of each model is insisted upon before the boy is allowed to begin to make it, cardboard-work is the incarnation of mensuration, plane and solid geometry, and arithmetic.

A course of work in this subject would begin with quite simple plane figures, necessitating elementary geometrical constructions. Every model should involve some definite truth in geometry, and should be accurately drawn to exact size as a preparation for the actual making of the model. Some degree of expertness in cutting, folding, pasting, &c., will thus be acquired before solids are attempted, and with care remarkable deftness can be quickly acquired. The modelling of solids should proceed in easy stages. The cube and the simpler prisms, with models founded upon them, provide abundance of work for many weeks. Every model should be fully developed in the flat and accurately drawn to measurement, with allowances for "flaps" and folding, and, so far as possible, the incidental mensuration and geometry should be fully mastered, model by model. This is a delightful way of learning mensuration, and as it is practical, visible, and applied, it is all the more effective. Here, of course, the handicraft and mathematical masters should be working together. The mutual help of the one subject to the other can be made most rich and abundant. It is extraordinary how much real knowledge of solid geometry a boy learns unconsciously with a good teacher in a well-arranged cardboard course.

(c) *Woodwork*.—As a rule in secondary schools a boy would pass on direct from cardboard to ordinary woodwork without a preparatory course of light woodwork. Here the opportunities for correlation with other subjects in the curriculum—and that without any artificial straining or forcing—such as mathematics, geography (the timber industry in all its branches), mechanics

(the principles of the tools used), natural history and botany (the microscope should be freely employed, showing from sections the structure of the different woods used), and even art and architecture. Nor would physics and chemistry be left out, as many pieces of apparatus for subsequent use in these subjects form suitable models for exercise in the handicraft-room. The co-operation of the science master can be enlisted here to the great advantage of this work.

(a) *Metalwork*.—Similarly in metalwork of all kinds, the value of instruction in the subject is increased considerably by correlating it with other subjects in the school course. In the early stages there is, as a rule, less opportunity for alliances with, say, mathematics and drawing, but new principles of tools and wider knowledge of materials and the production of them must be introduced almost at the outset. Here, then, science and geography are stimulated, and before much work is done in the new material visits must be paid to the region of chemistry in discussions upon the production of iron in its many commercial forms, and of the commoner varieties of steel. Later opportunities may arise for an extension of this elementary practical knowledge of metallurgy, when perhaps copper or brass and other alloys are used. A simple home-made furnace can be added quite cheaply to a workshop, so that elementary work in the mixing of alloys and subsequent casting from them in sand moulds can be easily included in a metalwork course. If the school be in the happy possession of power-driven machines, lathes, drills, planing machines, and the like, machine construction and drawing should certainly come under the ægis of manual training as a correlative subject, again to the mutual advantage of both. The machines themselves, as well as the power producer, whatever that may be, should be understood theoretically as well as practically by the boys who use them. It is sometimes startling to find with what avidity and ease comparatively young boys will acquire this knowledge.

III. TRAINING VALUE.—The great value of plentiful handicraft in the school time-table as technical training barely requires mention. The advantages are obvious, and not one of the least is the revealing to the school and home guardians of the boy his aptitude and fitness for future employment. The school workshops can be made infallible guides to a boy's suitability or otherwise for a mechanical career. The value of manual training is vindicated by this alone, that it can be used to diminish the number of square pegs that are forced into round holes.

But great and valuable though all the foregoing advantages are, the richest benefit to be derived from the inclusion of handicraft throughout the course in a secondary school results from its wise use as a means of character training. Here the conscientious teacher has a magnificent field, for from the very outset his boys are incarnating their own characters in tangible expression in every piece of work they turn out. This is much more

the case in handicraft than in any other subject. Every boy must produce his own work. Broadly, no companion can better what he is doing badly or in slovenly and haphazard fashion. And when it is produced it can be judged and assessed more absolutely than any work he does in the form-room. Furthermore, he can, with or without try-square, measure, or callipers, apply his own test to it, and, according to his own standard of rightness, before applying that of his master, he can condemn or give rein to his satisfaction.

Here, then, is the golden opportunity. The boy's standard must be set high and kept high. He must be trained into the habitual and passionate desire to produce good work because it is good. It matters not what the work is that he is doing—it may be a clay model that he knows will be broken up and remixed to make fresh supplies of clay for future work before he sees it again, or it may be some example of a dove-tail joint the wood of which will go to light the forge fire for his fellows on some future day—in this work he must be inspired to seek earnestly the highest perfection as he realises it. Here surely is a magnificent evangel of work. Let a boy once experience the unique joy of producing something that he can see and handle and at the same time pronounce good, a materialising of his ideals as near perfection as his powers will allow, finished and true in its hidden as in its visible parts—get a boy to do this consciously and of set purpose, and you have sent him a long way towards hating and condemning the shoddiness, superficiality, and sham that contents the feebler characters of our day. Stimulate every boy to turn out always his very best—making every best better than last time—because it has to pass the test of his own caustic criticism. The shrewd and discerning use of such a stimulus is a mighty dynamic to habitual thoroughness, and extends mysteriously but surely in wise hands to courageous grappling with tangible difficulties and the victorious overcoming of them. It is but a truism to add that the reaction on the personal character is tremendous and permanent. It extends beyond the walls of the workshop of the school into the workshop of the world of life. The handicraft teacher of wisdom will teach his subject; he will also turn his subject to the making of men of grit, of character, of worth.

### THE ABOLITION OF PRIZE-GIVING IN SCHOOLS.

By JAMES BUYERS, F.E.I.S.

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**F**OR many years there has been a silent acquiescence in the system of prize-giving in schools. It has been assumed that rewards of a material kind are essential to educational efficiency, and the teachings of Ruskin, Thring, Fitch, and others on this subject have been ignored, to the detriment of true education. It may, therefore, be profitable to consider some of the evils inherent in this system.

The purpose for which prizes are instituted is,

by the hope of a reward, to stimulate the whole class to mental effort, diligence, good behaviour, and regularity of attendance. On careful examination, however, it will be found that the benefits derived from the offered rewards are illusory, and, further, that such rewards act banefully on the character of the child. In discussing this question, strict logical consistency—that is, the exclusion of all artificial stimulus in the shape of material rewards—will not be aimed at; for what could be more natural and delightful than for a teacher or parent to reward a child in this way for excellence attained without the stimulus of a bribe? The objection is rather to those pre-arranged systematic schemes which keep medals, prizes, and certificates dangling continually before the eyes of the child.

What, then, is the opinion of teachers as to the benefits or otherwise of school rewards? Perhaps the experience of one with forty years' professional work behind him, who has seen the working of a non-reward system in Canada, the United States, and Germany, may be taken as that of many, possibly most, thoughtful teachers.

At the beginning of the year the bulk of a class may be more or less roused to exertion by hope of a reward; but as pupils realise that they have no chance, they retire from the contest, leaving the struggle, if there be one at all, to a select few. This being the case, prizes fail to accomplish one of the primary objects of their existence—the stimulation of the class as a whole, and especially the apathetic. Some may say that it is still a good thing to stimulate and reward the clever few; but, as a rule, the clever need no stimulus, and Nature has already sufficiently rewarded them by endowing them with special gifts for the possession of which they are not entitled, as Ruskin says, to take any credit whatever.

Another objection to schemes of prize-giving is that in actual practice the reward is given for intellectuality only. In the awarding of a prize the teacher is guided mainly by two things—mental ability and satisfactory conduct. In a rough and ready, and therefore inaccurate, fashion mental results, so far as they are tangible, may be measured up and marks given for them. But how is a teacher going to assign marks for satisfactory conduct? What is satisfactory conduct? It means, for the purpose of awarding prizes, giving as little trouble as possible in school. It can hardly be otherwise; for who can gauge and record values for the mental effort and resolution when they are put forth, the patience, courage, kindness, and self-sacrifice, it may be only in infant glimmerings, which a child may exhibit, and are at least as valuable as mental brilliance? Such things cannot be measured. Intellectuality is, therefore, emphasised, a false ideal is set up, and those virtues which exalt a nation are, in the eyes of the child, possibly in a semi-conscious form, placed on a distinctly lower platform. In actual practice, then, rewards are given for mental ability only, and a prize system, therefore, encourages the idolatry of mere knowledge.

In systematic schemes of prize-giving there lurks also a serious danger to the character of the child himself. Such schemes tend to encourage a kind of intellectual conceit in the prize-taker, and as the moral faculties of even the oldest of our pupils are in a somewhat rudimentary stage, he does not possess in a sufficient degree that humility which might neutralise the danger. Does not the system likewise engender in many of his fellow-pupils, envies, jealousies, and a sense of injustice, real or imagined, which are inseparable from the unhealthy competition for prizes, even when confined to the select few? What teacher, moreover, has not experienced the indignation of the irate parent the budding genius of whose child he has unfortunately failed to recognise?

Further, one of the greatest obstacles a teacher has to overcome in school is the constant distraction from which the pupil's mind suffers. Concentration of thought is necessary to good work—a trite saying, no doubt, but one must emphasise it. If to the inevitable distractions of the school-room are introduced the evitable by tempting the child to think of a prize, or to aim at getting an advantage over his neighbours for the sake of something mercenary, power of concentration is diminished, and work suffers. Some may say that this does not apply to the bulk of the pupils, who, after a short time, as already pointed out, retire from the competition, which is confined to the few most intelligent. To introduce unnecessary distracting elements, however, in the case of the brightest children is only to aggravate the evil. Exclude all extraneous excitement in the work of a class and experience shows that the play of intelligence has a freer course.

Consider next the evil of artificially encouraging the competitive spirit, which, however, cannot be altogether excluded from school. Emulation exists strongly in the child. It is a valuable principle, and the teacher is bound to utilise it reasonably to further his ends; but when it degenerates into a kind of commercial rivalry, the purpose is not ideal. There are some who think that this competitive spirit should be encouraged in school, and that it would thus become a valuable training for the time when the pupils must take part in the competitive struggle for daily bread. This is rather a powerful reason for keeping the school-room free so far as possible from a spirit which, however essential some may think it to the well-being of the commercial world, undoubtedly plays sad havoc among thousands who are trampled down in the mad race for wealth and position.

It is said that as pupils are punished when they do wrong, they should be rewarded when they do right. Assuredly. It is Nature's law. But how is the child rewarded by setting up a system of bribes which is productive of the evils pointed out, and endangers his growth in virtue. Reward the child by all means, but let it be by those unobjectionable methods which will readily occur to every enlightened teacher.

From the hygienic point of view, too, prize-giving is an evil. It has already been shown that

a system of rewards intended to stimulate mental effort fails so far as the bulk of the class is concerned. There are an intelligent few, however, in every class on whom it has a considerable influence. Is there not in these cases danger of overpressure, if to the emulation which is natural there is added the competition which is artificial? Then consider the effect which the various stimuli applied to children, in order that a boast may be made of a high percentage of attendances, must have on the children themselves. Now, regularity of attendance is essential, but surely not at the sacrifice of a child's health. Does this sacrifice ever happen? It does, and cases could be quoted from one county illustrative, no doubt, of what takes place elsewhere. Not a few children, therefore, are induced by the offered rewards to attend school when they would be better at home. Then there are cases of children who are reported never to have been absent from school for years. They have beaten the record. Have all the aches and ills to which the infant flesh is heir been concentrated in their case into the years preceding school life, or have these pupils come to school accompanied by their measles and their mumps and the other ailments to which all children are subject? One cannot but have his doubts. Then how many of those children who get attendance prizes deserve them? Have they earned them through their own individual efforts? Is not the credit due rather to the good mothers at home who have sent them regularly to school? So far as the child is concerned, therefore, the result is educationally worthless. Consider also the case of those who, through no fault of their own—through sickness or infectious disease in the house—cannot fulfil the conditions attached to a prize. There is clearly some injustice here.

Should prizes be abolished in the case of athletic sports? Well, the present discussion concerns the schoolroom. The playground and the field, though closely associated with the schoolroom, are in one sense a different world. This, however, might be said. Is not the glory of being first in a race for the mere love of being first, are not the plaudits of the onlookers and the hope of wearing the victor's crown sufficient incentive without dangling cheap gifts in front of every competitor? Cannot teachers point the children to a higher ideal even in sport? It is refreshing to find that in some quarters at any rate teachers are setting their faces against "pot-hunting," which, if a bad thing in sport, must be a worse thing for the work of the class-room.

It is sometimes urged that prize-giving is the means of disseminating much wholesome literature in homes where it might otherwise be absent. No doubt this is true. But the dissemination of literature is not one of the objects of prize-giving. Assuming, however, it is so, is it beyond the wit of education authorities and teachers to devise a scheme whereby all children, and not merely the prize-winners, may be encouraged to form little libraries of their own without introducing the evils of prize-giving? Most children save money.

Surely under proper guidance they can be induced to spend some of it periodically in the purchase of books. Could there be a finer investment for them, and would it not tend to cultivate in them a spirit of independence and lead them to value books all the more because they pay for them?

Again, many teachers object to the abolition of prizes because they have no assurance that the money spent on the books would be devoted to some object in which the whole class might share. But if the principle of prize-giving be wrong and productive of evil it cannot be right. Besides, could not the prize-money be utilised for the establishment of *class* libraries consisting of beautiful, well-bound books into which it would be a joy for children to dip?

Curious and varied are some of the arguments used against the abolition of prizes. Some objectors recall the joy they experienced when, as children, they received a prize, and think it would be unkind to deprive the rising generation of this pleasure. But it does not follow because a child is happy that the origin of the happiness is devoid of evil. Some of these evils have already been mentioned. Other objectors maintain that, though they have received many prizes, they are still unconscious of any deterioration of character on that account. But how few of us know our own defects and the originating causes! And then, had such never received school prizes, might they not have attained to a still higher plane of virtue? Another objector has said: "My managers spend a large amount annually in prizes. If prize systems deteriorate character, as is contended, my pupils must be very wicked. But the inspector has reported that the behaviour of my pupils and the tone of my school are excellent." The reply is obvious. How can any inspector by a cursory glance detect the workings of the child's mind? Motives work silently, secretly, sometimes unconsciously, and seldom show immediate effects in outward behaviour. An apple of the most roseate hue and seemingly perfect may have its canker-worm at work within.

Generally speaking, those countries which are always being held up to us as educational models have no systems of prize-giving. Horace Mann, one of America's greatest educationists, writes: "We are all anti-emulation men—that is, all against any system of rewards and prizes designed to withdraw the mind from the comparison of itself with a standard of excellence, and to substitute a rival for that standard." Dr. Wiese, a former director of public instruction in Prussia, condemns our systems of rewards. He says: "A nation (England) which has so great and sacred a sense of duty makes no use of that idea in school education. It has rather allowed it to become the custom, and it is an evil custom, to regard the prospect of reward as the chief impulse to industry and exertion." Fitch accepts this opinion, and puts the whole matter very succinctly thus: "A child is stimulated by—

"1. Desire to get something, or by hope of tangible reward.

"2. Desire of distinction, and wish to excel his fellows.

"3. Desire to win approbation from parents and teachers.

"4. Simple wish to improve, and to do the right thing because it is right."

It will be observed that in this classification the ignoble motives come first, and the highest last. Have not teachers been playing too long on the lowest motives of human nature? Let them give up, or induce education authorities to give up, their schemes of bribery, and instil "Duty" as the mainspring of action. With this loftier ideal kept before the children, teachers will be helping to strengthen the moral fibre of the rising generation and to develop some sense of genuine patriotism.

## THE EDUCATIONAL VALUE OF MODERN BOTANICAL TEACHING.

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**B**OTANY has been a familiar subject in the school curriculum, at least so far as girls' schools are concerned, for many years, but its educational value has been underestimated to the extent of denying that natural science occupies a place in the curriculum when botany only is taught.<sup>1</sup> This charge, however well-founded twenty years ago, cannot hold to-day, for reform in the teaching of physics and chemistry has been accompanied by a similar development in the teaching of botany, the results of which are most apparent in the work up to matriculation standard. The study of botany after this stage is frequently preliminary to a university course, and is beyond the scope of the present article.

The changes, both in subject-matter and in the aims set before the teacher, are well brought out by a comparison between modern syllabuses and those of an earlier period. In "Schemes of Instruction in Botany," drawn up by Prof. Balfour in 1887 for the schools of the Girls' Public Day School Company, it is stated that the educational result desired is "accurate and precise knowledge of certain definite objects." The elementary work is based on the study of thirty-four common plants, from which "the salient features and uses of the external parts of plants" are to be learnt. This course leads on to the study, morphological and histological, of *Helianthus* (sunflower), and of three cryptogams—*Aspidium*, *Funaria*, and *Mucor*; ten natural orders are also included in this advanced course. Other contemporary syllabuses show similar characteristics, and in all may be noted the absence of experimental physiology and the prominent place taken by the cryptogams and histology.

The syllabus in botany for Part II. of the Preliminary Examination for the Elementary-

<sup>1</sup> Findlay, "Principles of Class Teaching," p. 240.



school Teachers' Certificate illustrates well the trend of botanical teaching at the present time. The educational result here desired is "knowledge acquired by observational work of the dependence of any living thing on its surroundings." The syllabus provides for a very thorough study of the relation of the plant to the air, soil, and water, but gives no encouragement to systematic work. The present syllabus set for the London matriculation examination, though not so much detailed, covers almost the same ground, and also includes certain natural orders. Both schemes include elementary ecology. The inculcation of wide biological principles is the task that lies before the teacher who prepares pupils for the Junior and Senior Cambridge examinations. He is asked to lead them to recognise that "any single plant growing in its natural habitat may be regarded as an efficient machine exhibiting division of physiological labour," that "there may be many efficient types of plants growing in the same habitat," and that "plants are efficient for life in very various habitats." Structure and function are to be correlated throughout, work in physiology is to be experimental, whilst ecology and seasonal changes in plants occupy a prominent place. Only in the Senior examination is any knowledge of histology required.

A comparison of these schemes shows clearly the lines of development of the modern teaching of the subject; the study of cryptogams and of histology has been largely abandoned, morphology is to be correlated with physiology, while experimental physiology and ecology have been introduced; as a result of these modifications, the subject-matter can be so treated as to afford a means of training the mind in scientific habits of thought.

Before passing to a detailed consideration of botany under this comparatively recent aspect, the canons of our faith with regard to the educational value of a scientific subject may be enumerated briefly. A science to be suitable for school work must be concerned with material which is simple enough to afford exercise for the observational powers of immature minds; such material must also be readily obtainable. The data accumulated by observation must be capable of giving rise to simple generalisations and hypotheses, which must then be tested experimentally. The complete process, which may be termed scientific thinking or the solution of problems along experimental lines, gives the student a grasp of what is known as "scientific method." Further, the acquisition of knowledge in this manner will soon develop the important conception of the connection of all phenomena in a definite scheme of causation. The simpler the phenomena considered the more suitable is the subject for this training in scientific thinking, and botanical work in schools must afford it to some extent to be worthy of a place in the curriculum.

At the same time botany must be considered,

as Prof. Adams has stated in his recent lectures, as a subject "easily adapted to give education for leisure," and its value from this point of view must not be forgotten. School work in botany has this advantage over the majority of science subjects studied, that, while capable of having "a purpose and completeness of its own,"<sup>1</sup> it need not represent "the initial stages of a study which the pupils will never continue."<sup>1</sup> The two aims in botany teaching are not attained by precisely the same method of treatment, for the knowledge accumulated for the purpose of providing a background for subsequent thought in times of leisure should be wider than that which is needed for training in scientific thinking. It is always important, and particularly so in botany, that the heuristic method of study should not lead to too great a narrowing of the field of knowledge.

It is obvious that successful training in scientific habits of thought cannot be attained without a continuous study of the subject throughout several years. In the earlier years of the course, the habit of scientific thinking should be acquired, as in the case of any other habit, by simple practice, but later the treatment of the subject should become conscious on the part of the pupil, and should develop into scientific reasoning. Any break in the continuity of the teaching is disastrous, and it is unfortunately often the case that the teaching of botany begins well with nature-study in the lowest forms, but is then discontinued for a longer or shorter period, and becomes a mere cramming of examination facts, when the subject is taken up again in the higher forms.

The content of a course in botany suitable for school work up to matriculation standard is fairly well established, but the method of treatment that will bring out the full disciplinary value of the work has yet to be elaborated. The following four-year course is suggested as capable of affording considerable training in scientific method without any undue limitation of the subject-matter:

*First Year* (age, 12-13; time, 1½ hours).

Elementary morphology of leaf, stem, root studied in plants that show no exceptional modification of structure; correlation of their structure and function. Field observations on five or six common trees, together with indoor work on their leaves, buds, twigs, and fruits. Elementary morphology of the flower studied in daffodil, hyacinth, buttercup, wallflower; outlines of pollination; simple fruits.

*Second Year* (age, 13-14; time, 1½ hours).

Dehiscence of fruits and seed dispersal. Structure of seeds (bean, acorn, sunflower, maize, &c.) and their methods of germination. Study of trees continued on former lines. Perennation (*i.e.*, the persisting of plants in a more or less dormant state through unfavourable seasons), by means of stems and roots; renewal of growth under favourable conditions. Climbing plants and their relation to light and air. Flower structure in additional genera belonging chiefly to the natural orders Ranunculaceæ, Amaryllidaceæ, Liliaceæ, Cruciferae.

<sup>1</sup> Report of the Board of Education for the year 1909-10, p. 75.

*Third Year* (age, 14-15; time, 1½ hours).

Absorption of water by seeds and roots; osmosis; passage of water through the plant; transpiration. Structure of soil; its air and water content. Plant food obtained from the soil; water cultures. Starch making by green leaves. Respiration. Natural orders Ranunculaceæ, Amaryllidaceæ, Liliaceæ, Cruciferæ.

*Fourth Year* (age, 15-16; time, 1½ hours).

Internal structure (so far as possible lens view only) of leaf, root, stem of herbaceous and arborescent plants; function and structure of leaf and stem correlated with rate of transpiration in xerophytes and water plants. Leaf arrangements in connection with light supply. Measurement of growth in roots and stems; the irritability of plants. Cross-pollination by means of wind and insects in connection with structure of flowers and nature of inflorescence. Natural orders Rosaceæ, Leguminosæ, Labiata, Compositæ, Primulaceæ, Salicaceæ.

The course thus outlined can only be satisfactorily carried out when correlated with work in elementary physics and chemistry. A year's work in elementary measurement should be taken at the age 11-12, followed by a two years' course in elementary science, and during the third year of the botanical course work in chemistry should run parallel with the physiology. The power to think chemically is absolutely essential for the right understanding of many physiological processes in plants, and since this power develops with extreme slowness, the study of chemical processes during the two years devoted to elementary science and definite work in chemistry during the third year are both highly desirable. The minimum time for the course thus outlined should be 1½ hours per week for the botanical work, and one hour for the elementary science and chemistry; except in the case of a few lengthy physiological experiments, the best arrangement of the time available for the botany is that of two periods of three-quarters of an hour each.

The course may be followed on didactic or on scientific lines, but the former method of treatment deprives the subject of much of its disciplinary value, and is only to be adopted in the last resort.

As affording training in observation, botany is without doubt unrivalled, for material for study is readily obtainable, and is of a nature suitable for exercising the powers of accurate analysis and description. During the first year of the course, therefore, the teacher must endeavour to train the child in habits of accurate observation and of clear expression both in words and in drawings of the facts observed; simple generalisations may be introduced as the knowledge of facts increases. It is important to realise that these simple generalisations may be to a certain extent based on the previous knowledge of the child, and that the first year's work is largely a rearrangement of ideas about plants already present in the child's mind. For example, the general notion of an ordinary leaf as a thin, flat, wide structure is based upon facts about leaves already familiar, as well as upon those recently observed in class. Botanical terms should be introduced

only when a need for them is really felt—that is to say, when conciseness of expression and accuracy of statement are perceived to be particularly desirable. The study of plant morphology on the old lines has without doubt given rise to the popular idea that botany is mainly concerned with long names, and though technical terms are necessary in every science, the fact that the apprehending of these does not constitute a study of the science is emphasised by the present tendency to use everyday words so far as is consistent with accuracy.

The memorising powers of a child are strong, and during the first year of the course it is a favourable opportunity to fix thoroughly in the mind certain easily grouped fundamental facts with respect to the function of plant members; these facts must not be such as to vitiate the "research value" of experimental work to follow later, and the statements must be capable of being gradually unfolded in successive years. Thus the fact that the leaf is the organ of absorption of gaseous food is of fundamental importance, and the knowledge of it will not interfere with the subsequent experimental work on starch formation by leaves. Similar facts should at this period be well rooted in the mind. The main biological principle to be instilled in the first year of the course is that the plant consists of dissimilar members, correlated in form and function, and showing physiological division of labour.

During the second year's work, the powers of observation are again exercised, but the generalisations that follow from the data collected are of a more advanced type. The adaptation of the plant to seasonal changes and to the habitat now comes under consideration. The combined experience of the class, together with the results of field and class work, leads to such generalisations as that winged fruits are borne chiefly by trees, that swollen roots are often found in biennial plants, and that foliage leaves frequently show a tendency to place themselves at right angles to the rays of light. These generalisations form appropriate material on which the mind can work. The experimental study of plant physiology is perhaps the most striking feature of recent schemes of work in botany, and the educational value of the work done during the third year of the course is akin to that usually claimed for the experimental study of physics and chemistry. The relative value of demonstration and practical work is here, as in other branches of science, open to discussion, and advocates of at least occasional demonstration are many in number. The real solution of the problem seems to lie in a judicious combination of the two, with the balance distinctly inclined to the side of practical work, but possible in botany, where much of the experimental work needs a distribution of time which cannot be obtained in practical lessons, owing to the rigidity of the time-table, an experiment, carried on by the teacher, and left in some readily accessible place for the continued observation of the pupils, may be of equal educational value with practical work of the ordinary type. This must not exclude

a considerable amount of experimental work on the part of the pupil.

All life processes in plants are influenced by four factors: temperature and the available supply of water, air and light. It is very difficult, under school conditions, to eliminate the effect of three of these factors in order to study the effect of the fourth; hence the complications that ensue often involve a partly didactic method of treatment of the phenomena. "Science exposition must be based upon a comprehensive observation and ripe experience, which acknowledges all the factors of the situation."<sup>1</sup> It is obvious that conclusions drawn from experimental work of this type must be drawn with the utmost caution, and it is well to bear in mind the words of Comte: "It requires a highly philosophical spirit, acting with extreme circumspection, to conduct physiological experiments at all." The successful conduct of these experiments and the right treatment of the matters for investigation suggested by the pupils require much judgment and knowledge on the part of the teacher. As an example of the fallacious reasoning sometimes introduced into experimental work, the well-known experiment on carbon assimilation may be cited, where leaves are left in an atmosphere deprived of carbon dioxide by soda-lime, and the non-appearance of starch in them is held to show that its formation is dependent on the presence of carbon dioxide in the air. As a matter of fact, the dryness of the atmosphere would cause closing of the stomata, and, to a large extent, the checking of the absorption of carbon dioxide, even if it were present. Many experiments now prevalent in botanical text-books for the use of schools, when carefully examined, will be found to be far from crucial.

The difficulty of isolating phenomena to be studied and the continual necessity for considering side issues render experimental plant physiology of less value as a means of training the mind in scientific method than experimental work dealing with the simpler phenomena available in physics and chemistry. At the same time, the teacher can so present the subject as to make it eminently suggestive. Biological phenomena seem akin to matters of human interest, and as a result stimulate thought in a very high degree.

So far as the educational value of such quantitative work as is possible in schools is concerned, botany is distinctly inferior to either physics or chemistry, as in most experimental work into which measurement enters, rather indefinite numerical results must be expected. Thus, the results obtained in finding, for example, the percentage of water in seeds, the absorption of water by seeds, rate of transpiration, soil temperature, or air content in soils, lie between such variable limits as to make any but gross errors quite inappreciable.

Resourcefulness, self-reliance, skill in manipulation, and neatness of work, are, of course, developed by practical experimental botany, as

by any other science when studied in the laboratory.

The study of the classification of flowering plants is introduced during the third year of the course, and then only in connection with four orders, for it seems more desirable that limitation should occur in the number of orders studied rather than in the number of members studied in any particular order. Systematic work can be made of considerable educational value, but it is probable that in many schools limitations of time prevent its really scientific treatment. The comparison of enough plants to render possible the gradual growth in the minds of the pupils of the idea of a series of natural groups of allied plants is a lengthy process, and the important ideas of order in the plant world are generally gained in a didactic and not in a scientific manner. Scientific treatment of this part of the subject will be encouraged by a limitation of the number of orders studied, which will afford a possibility of the analysis of a larger number of individual plants belonging to these orders.

The fourth year's work bears directly on the important biological principle of the power of response on the part of the plant to varying conditions. The experimental work, in the garden and in the laboratory, must bring out clearly the connection between cause and effect with regard to the influence of its surroundings on the living plant. This knowledge is of such far-reaching importance that our aim in instilling it cannot be overestimated. The plastic nature of the plant and its inevitable response to external conditions can be shown by its habit of growth under favourable and unfavourable conditions. In the space of a few weeks its growth may be so much hindered or wrongly directed by unsuitable surroundings, that in no way can the power of healthy growth be regained. A conception of the action of the environment on the living organism will be obtained, which will be invaluable in its application to human life.

At the same time, the course here given includes no direct study of plant ecology; that is to say, of plants considered in relation to their habitats, for this, as a part of botanical work in schools, is of very recent introduction. Its value probably varies very much with the locality of the school, for frequent excursions form an indispensable part of the work. It would be well if those concerned with the drawing up of botanical syllabuses considered not only what is ideal in such schemes, but also what is practicable. The knowledge of ecology that is of value must be derived from personal field observations, and any encouragement of cramming is to be seriously deplored. Plant ecology as an optional part of a syllabus in botany is rightly placed, but when it is made compulsory it may lead to much unscientific work. Even in schools where the botanical equipment is so complete as to include a garden where plots of various kinds of soils have been artificially introduced, and where imitation hedges, marshes, and ponds flourish, the time that is necessary for the study of

<sup>1</sup> Findlay, "Principles of Class Teaching," p. x.

plants in their natural habitats is in no way diminished.

This four-year course might, with advantage, be followed by another year's work, in which some one section of botany could receive more exhaustive treatment. The study of ecology, of histology, of advanced systematic work, or of cryptogamic types would afford continued training in scientific thought, and would give a wider acquaintance with the phenomena of plant life. It may be of interest here to note that in the work in botany for the honours certificate given by the Central Welsh Board, a certificate that is usually gained at about the age of eighteen, "independent work based on the pupil's own observations" forms an important part of the syllabus, and certain subjects are suggested upon one of which the candidate may exercise his powers of research.

Although physics and chemistry must undoubtedly stand in the first rank of science subjects with regard to their power of developing the scientific attitude of mind, botany, when taught on modern lines, can also be claimed to be efficient in this direction. The accumulation of data, the generalisations therefrom, and the continual bringing the generalisations thus made to the test of experiment, constitute a process which, carried on in the past, has resulted in our present botanical knowledge; the realisation on the part of the child that this is the only satisfactory method of "knowledge-making" in any science is the great goal at which the teacher aims.

Further, when the subject-matter used in this training in scientific thought deals with such important biological principles as that of the dependence of a living organism on its surroundings, knowledge that is second to none in its power of stimulating and satisfying thought, we may safely claim that botany is worthy of a very high place amongst the scientific subjects that enter into the school curriculum.

#### THE IMPERIAL EDUCATION CONFERENCE.

NOW that the Conference is over and the complete report of its proceedings has been issued, it may rightly be asked, What has the Conference done? In some quarters there certainly was a feeling that the reports published day by day showed its discussions to be mainly academic, of only insular interest, and on subjects on which the opinion of the United Kingdom was the dominating one.

The papers presented to the morning sessions differed in character from those read at the afternoon sessions, which were dealt with in the last (June) issue of *THE SCHOOL WORLD*.

A deputation consisting of Prof. Sonnenschein, Miss Haig Brown, and Prof. Rippmann attended from the Joint Committee on Grammatical Terminology. Prof. Sonnenschein explained that the present confusion of terminology had arisen from diversity of treatment by different grammarians, of each language taken separ-

ately, and from the failure to co-ordinate and treat from a common point of view the grammatical phenomena of the languages taught in schools. He said that the object of the committee was to find a common point of view from which the grammatical phenomena of all the languages of our family can be regarded and named; in other words, to adopt a common scheme of classification and nomenclature based on distinctions of meaning, which may be applied without violence to all the languages of the group. Prof. Rippmann made the further point that grammar learned for the mother tongue ought to serve for other languages studied subsequently; he urged uniformity in language-teaching in the matter of phonetics as well as in grammar.

A discussion followed two papers on the simplification of English spelling. After pointing out the defects of English spelling and insisting on the fundamental principle that a living language is in a state of perpetual transformation, the sounds altering from generation to generation, Dr. Edwards put three possible attitudes towards simplification: keep the traditional spelling, have a new English spelling, or have a gradual reform, getting rid first of the more glaring inconsistencies. Finally, he urged a clearer understanding of the principles underlying the proposed reforms, and fuller information about the goal at which we are to aim. Dr. MacKay gave an account of the changes taking place in Nova Scotia under the influence of the Simplified Spelling Board and other societies, showed the use that could be made of the phonograph, and concluded by stating the possible lines of action.

Dr. Viljoen (Union of South Africa) then described the steps that have been taken to simplify Dutch orthography; three modifications had been made during the nineteenth century. The Conference resolved: "That this Conference is of opinion that the simplification of spelling is a matter of urgent importance in all parts of the Empire, calling for such practical steps in every country as may appear most conducive to the ultimate attainment of the end in view—the creation, in connection with the subject, of an enlightened public opinion and the direction of it to the maintenance, in its purity and simplicity among all English-speaking peoples, of the common English tongue."

The report and its appendices suggest that the keenest discussion was that on Bilingualism; it was put down for the agenda of the Conference, but was ruled out as then being of political interest. As circumstances had changed, the representatives discussed the subject the day following the termination of the official sittings of the Conference. The balance of opinion was that instruction during the earlier years at school should be in the mother-tongue, and that the second language should be added later, though at what age there appeared some difference of opinion; some advocated the first or second standards at the age of seven or eight, some two or three years later. It was generally agreed that to attempt

to keep the two languages together leads to a mixing of the two.

The report does not give the arguments on the more practical administrative problems. After discussing the desirability of an Imperial Education Bureau, the Conference passed a resolution appreciating the services of the Office of Special Inquiries and Reports, and requesting the Board to permit their continuance and extension.

The Conference recommends the several Education Departments of the Empire to issue monographs on (a) the curricula of schools for general education; (b) the training of teachers for schools giving a general education; (c) the laws of compulsory attendance and their working; (d) the general education of children in sparsely populated areas; and (e) the medical inspection of schools for general education. A further monograph was considered desirable; it was to deal with the laws of compulsory attendance and their working in the chief European countries and in the United States of America. This, it was suggested, should be prepared by the Office of Special Inquiries and Reports.

In the course of the discussions, difficulties were experienced in making comparisons between the statistics available with regard to educational work done in different parts of the Empire. Not the least of these is the variety of meaning attached to the same technical term. A resolution was passed urging the several departments to include in their published statistics careful definitions of all the technical terms used, and an index to facilitate reference.

Such, then, were the discussions and the chief resolutions of the Conference. No one but the representatives themselves can estimate the usefulness of the series of meetings—the public afternoon sessions, the more private morning sessions, the round of visits, more or less social. The value of the published proceedings may be ever so little, yet that of the whole may be considerable. Perhaps in this, as in other conferences, the greatest effect is the personal one—that fifty representative men responsible for the organisation of education in all parts of the Empire should come together, learn to know one another's opinions on some of the educational problems of the day, and, more, to know one another, cannot but have its due effect on them and on the educational activities that they administer; and that effect should be to increase still further their breadth of view and to render the education of the Empire more efficient.

*How to Teach Nature Study.* By Thomas W. Hoare. xxii+316 pp. (Sidgwick and Jackson.) 3s. 6d. net.—Many teachers will find this book very helpful. At this stage one hardly expects many novel suggestions on the general principles of teaching nature-study, but every good teacher has his own methods of presenting certain details and aspects of the work. When, as in this case, the methods are the result of wide practical experience, their publication can have only good results. The book is excellently illustrated, and contains many useful hints.

## BOYS' VISITS TO FOREIGN SCHOOLS.

By G. T. HANKIN, B.A.

King's College School, Wimbledon.

MODERN language teachers have for years been advocating an interchange of children between various countries, and there exists a variety of organisations to encourage the movement. But the head German master, Mr. W. Koch, at King's College School, Wimbledon, may fairly claim the credit of a novel experiment, the interchange of visits between school and school. Last Easter he organised a party of boys from the school at Wimbledon, who travelled out to the well-known Pädagogium at Godesberg. There the boys took part in the school life for a few days and attended the classes for two hours every morning. When the school closed for the holidays they wandered up the Rhine, visiting places of historical and commercial interest, from cathedrals to champagne stores. In June the visit was returned on a somewhat larger scale. Seventeen Godesberg boys, with two masters, were accommodated in the two boarding-houses attached to the school, and in the homes of boys who had been on the German expedition. The visitors came into morning prayers, attended classes for two hours, and in the afternoons were escorted into London, or to places of interest further afield, when possible in the company of the English boys who were particularly interested in the expedition. For example, they went to the Military Tournament accompanied by cadets, and on an archaeological ramble with those boys who would have taken part in any case. Thus they were attached to the school for most of the ordinary life of the boys, though for them the hours of class work were cut down to a minimum. After about three weeks of such experiences they returned to finish their term's work at Godesberg, where their Whitsun holidays had been specially extended for the occasion. (Naturally the boys feel that a couple of hours' work daily under such novel surroundings is no hardship, even if some of their holiday is so spent.)

It is now possible to sum up the general effect of the two visits, and to get some idea of the value of the experiment. It must be frankly admitted that an English boy would probably learn more German if he spent his fortnight in the midst of a German family where he would never hear his native tongue; that is, if he did not moon about alone most of the day, grumbling to himself, in English, at the strangeness of his surroundings and the dullness of the life. But in a German family he certainly would not see much of interest to him unless he were accompanied by a companion ready to sacrifice himself to the special needs of a young mind. He would have, moreover, very little chance of taking a share in the normal life, the school life, of those of his own age. Granted that only a fortnight is available, the school visit seems to offer more than can be obtained in any other way, more opportunities of learning the language than a boy can get travelling with his parents or a tutor, more possibilities of seeing the

country intelligently than can be afforded by residence in a private family.

One great step the boy does make in his study of the foreign language—the understanding of its reality. It is common knowledge to teachers that boys, particularly those who have received an early training in Latin, do not easily realise the actual use of a foreign tongue. It is extraordinarily difficult for them to grasp the fact that people really speak in it, that “Give me an ice” can be represented by any combination of sounds that can be learnt in a grammar or translation book, or that it would be any use to utter such a combination in a foreign country, if one were to require such nourishment. The visiting team—if the phrase is permissible—does gain this understanding rapidly when its members are studying the manners and customs of inhabitants of their own age and standing, and an enormous step has been made which will vitalise the teaching they are receiving in the class-room in their own country. In the school visit, therefore, the main advantage that can be gained by a short residence abroad is assured.

Further, the visitors gain some insight into the habits and feelings of boys of their own age and standing, but belonging to another race; they pass from their own school world into another, where they can recognise their own feelings and experiences, though in somewhat different surroundings. Small talk becomes possible for German and English boys when they have sat in the same classes; they at once have an entrancing subject in common, the shortcomings and peculiarities of the masters, an inexhaustible topic even up to the university age. Thus the school visit makes friendships possible, and breaks down the shyness always felt by a boy towards one of another nation.

It is perhaps the hosts who gain most by these interchanges, not in the narrower sense of acquiring positive knowledge for examination purposes, but in the removal of prejudices which cloud the mind, narrow the outlook, and restrict the sympathy. The whole of King's College School has benefited. Before the arrival of the visitors our national suspicion of foreigners was forcibly and freely expressed. May it be whispered that not even all English schoolmasters are entirely free from the prejudice against those who have not been born in this favoured isle? How often has one heard the phrase in reference to a single French or German boy in an English school, “Quite a good chap! Never would imagine that he is a foreigner,” though he may be the only Frenchman or German that the speaker has ever met. But this point of view can hardly be applied to a party of nineteen, all pleasant human beings. It can hardly be said that none of them is the least like the ordinary German. Thus the collective result is far greater than any that individuals could produce. One German boy, however pleasant, does little to remove prejudices; a party cannot be treated as totally unrepresentative.

The modern language master is sometimes told that his subject has little educational value, that a boy is no better prepared for life if he knows three names for a table instead of one, or if he has developed certain fresh automatic reflexes of the organs of speech. But such criticism loses all meaning when modern language teaching is so clearly seen to be also a means to an end, and that end a noble one—to enlarge the outlook and to break down those foolish national prejudices that are only founded on ignorance. And this the experiment at King's College School undoubtedly has endeavoured to do, with considerable success. It would be absurd to say that about three weeks in England enables the young German to appreciate England or the English educational system; but it can give him a chance not to condemn blindly the Englishman as illiterate and brutalised by an insane devotion to sport. Similarly, it can teach the English boy that the German is a companionable human being, who has other ideas than a blind hatred of England and a mad desire to invade her.

#### PERSONAL PARAGRAPHS.

**M**R. MONTAGUE JOHN RENDALL'S connection with Winchester College is of long standing. Appointed to an assistant-mastership in 1887, he has been second master since 1899, and for the last two terms has been acting headmaster during the absence of Dr. Burge. His recent appointment as headmaster of Winchester, in succession to the new Bishop of Southwark, is a fitting recognition of his long service and outstanding ability. Born at Great Rollright, Oxon., in the year 1862, Mr. Rendall was educated at Harrow, where he was head of the school. He proceeded to Cambridge as foundation scholar of Trinity College, and in 1882 obtained the Bell Scholarship. He was placed in the first division of Class I. in the Classical Tripos of 1884, and also obtained a first in Part II. in 1885. Successful as well in the athletic world as in the intellectual, Mr. Rendall was a keen sportsman, and was awarded his “Blue” for Association football.

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MR. FRANK FLETCHER, who has recently been appointed to succeed the Rev. Dr. Rendall as headmaster of Charterhouse School, will be much missed at Marlborough, where he has been headmaster since 1903. Both at Rossall and Balliol his career was eminently successful. Among his Oxford honours are included first classes in Classical Moderations (1891) and Lit. Hum. (1893), the Craven Scholarship (1890), the Ireland Scholarship (1891), and the Derby Scholarship (1894). From Oxford he went as assistant-master to Rugby School, where he remained until his appointment at Marlborough, where he held the headmastership with a distinction that augurs well for his reign at Charterhouse.

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THE University of Liverpool, in appointing to its Gladstone chair of Greek a foreign scholar

so eminent and able as Dr. Lehmann Haupt, has given yet another proof, if that were needed, of the wise statesmanship of its Council and Senate. The University desires that its classical courses, both in Greek and Latin, shall be something more real and instructive than a mere study of languages and literatures; it desires that due attention shall be paid to the sidelights of classical education—that systematic instruction shall be given in ancient life, customs, and philosophies. It would be hard to find anyone better suited than Dr. Haupt to encourage in this way the archaeological and historical side of classical studies; and he, for his part, will doubtless find friendly acceptance for any developments in this direction which may seem to him to be advantageous.

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DR. HAUPT has had a distinguished career in his own country, and his experience of German educational methods, both in schools and in the university, is varied and comprehensive. As founder and editor of *Klio*, an archaeological journal of high reputation, his name is already well known to classical scholars in this country. He has been the leader of an archaeological expedition into Armenia. He still holds a professorship of ancient history in Berlin. In short, his interests and attainments are wide, and his sympathies less confined than those of many eminent German scholars. Dr. Haupt should make his influence felt at Liverpool.

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I NOTE that the Lords of the Committee of Council on Education in Scotland have appointed Prof. R. Patrick Wright, at present principal of the West of Scotland Agricultural College, to fill the post of agricultural adviser to the Scotch Education Department. Prof. Wright's name appears among the list of Coronation knights.

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THE West Riding Education Committee has appointed Miss Helen M. Wodehouse, M.A., D.Phil., at present lecturer on philosophy in the University of Birmingham, to the principalship of the Bingley Training College for Women Students, which is to be opened in September. Miss Wodehouse was educated at the Notting Hill High School, and afterwards at Girton College, where she obtained high honours in mathematics and moral science. At Birmingham University she graduated M.A., afterwards taking the degree of Doctor of Philosophy. She holds a teacher's diploma, and her work at Birmingham has been closely connected with the training department for secondary and elementary teachers, and has included experience of a residential institution in connection with the hostel for women students attached to the University. Miss Wodehouse is a writer of growing reputation on philosophical subjects; she has served as a member of the Wolverhampton Education Committee, and as a lecturer to classes organised by the Workers' Educational Association.

THE REV. E. I. A. PHILLIPS, headmaster of Kelly College, Tavistock, has been appointed master on the military and engineering side at Clifton College, in succession to Mr. G. W. Palmer, who has been appointed senior mathematical master at Christ's Hospital, Horsham.

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MR. K. J. SPALDING, of Balliol College, Oxford, has been elected by the council and committee of Queen's College, London, to the professorship of Greek, Latin, and ancient history.

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THE REV. F. J. PAUL, of Bushmills, has been elected professor of Church history at Magee College, Londonderry.

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THE new schemes of secondary and higher education in France have recently been the subject of much criticism. The abolition of compulsory Latin in the Lycée curriculum has called forth the protests of men of letters. A petition, including such well-known names as MM. Anatole France, Jules Claretie, Henri Poincaré, Emile Faguet, Doumic, and René Bazin, has been addressed to the Minister of Public Instruction, pointing out that the national genius of France has always been closely connected with the study of Latin and Greek, and protesting against the growing inadequacy of attention devoted to the French language. The Minister of Public Instruction, M. Steeg, replied in what has become the stereotyped manner. While acknowledging the advantages of a training in Latin and Greek, he denied that this is the only form of education which can develop the intelligence, the judgment, and the general culture of the student. He asserted that culture could be attained by very different methods, and that in these days, when such revolutions are taking place in the world of science and in the economic life of the nation, it would be folly "to withhold from the *élite* of the nation conceptions which are nowadays indispensable."

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A LONG list of names famous in the literary world is appended to a declaration of the Poetry Society, which is shortly to be issued to the educational authorities and the heads of the principal schools of the United Kingdom. It is urged that poetry, in its widest and best sense, should be recognised as a necessary subject of study, and should form a regular part of the curriculum of every school; that inducements should be offered for the study, and especially for the intelligent reading, of poetry; and that all colleges and training schools should institute a chair of poetry. The apathy towards poetry which exists in many schools is certainly deplorable, though surely it is a subject in which it is easy to stimulate a real and intelligent interest. And yet it is still regarded by many as an unnecessary "extra," to be indulged in only in spare moments. It is sincerely to be hoped that teachers will take



the declaration of the Poetry Society to heart, and realise the important part that poetry should play in general education. The above recommendations will be embodied in the proposals which the Board of Education has requested the society to submit.

ONLOOKER.

### EDUCATION IN FRANCE.<sup>1</sup>

IN past days the Office of Special Inquiries and Reports has been criticised adversely for confining its attention mainly to studying German and American schemes of education. Its excuse was that those two nations were our chief competitors in commerce, and that we had to know all about their methods, so as not to be outstripped by them. In addition, the first Director, Prof. Sadler, and his successor, Dr. Heath, were apparently more in sympathy with Germanic thoroughness than with Latin brilliance. But this reproach can no longer be levelled at the office, for the present volume gives a very good survey of what progress the French have made in their higher education since the laws of 1902, and how they have fashioned it to meet the new needs that arise daily.

The official introduction says :

The disasters of 1870 produced a new seriousness in the nation, and it was no longer only the men of learning who demanded an improved higher education. So soon as the existence of the Third Republic was assured, successive ministers of education clearly realised that the establishment of real living universities was the goal towards which their efforts must be directed. It was equally clear that if this end was to be attained, much preliminary work had to be done. Instead of proclaiming a general idea in the form of a law (as is not unknown in French legislation), on this occasion the law was only the final consecration of a purpose already effected. This was the reason why a proposal first mooted in 1876 was only realised twenty years later. In the intervening years the faculties had to be galvanised into life, their right admitted to serve the cause of scientific research side by side with the *École des Hautes Études*, the material conditions under which they worked so improved as to make this a possibility, the proper relationship established between the teachers and their pupils, and a true academic spirit diffused amongst the latter. With that generous enthusiasm which has always been characteristic of the French nation, the students responded to the demands made of [sic] them, and by their audacity showed that the time for State action was ripening.

It makes sad reading for an English teacher to note how much better they order these things in France. He may well envy his French colleague's honoured status, his shorter hours, his better wage, and his pension. Of course, there are drawbacks, which may be summed up in the one word, *l'ad-mi-nis-tra-ti-on*. The teacher has not the freedom of our large public schools, perhaps, but he is treated more as a scholar and a gentleman than as an inferior clerk or upper servant.

This interesting volume begins with a translation by Mr. P. J. Hartog, the Academic Registrar of the University of London, of the curricula of the French secondary schools for boys. It is quite a careful piece of work, and gives (as every good translation should) the original text wherever the exact English equivalent is difficult or impossible to attain. The most interesting parts of these curricula are the instructions issued to masters as a corollary to them. The English master will be interested in the arrangements for holding *Conseils de Classe* (meetings of masters taking the same class in different subjects) and *Conseils d'enseignement* (meetings of masters taking the same subject in different classes). We wonder how often either of these are held in our English public schools; and yet how can work be co-ordinated without them?

*Conseils de Classes* (meetings of masters taking the same class in different subjects).—It is indispensable that in each class the work of the pupils should be methodically arranged, and that the various weekly tasks should be balanced in such a way that, the relative importance attaching to each part of the syllabus according to the study-plan being duly considered, there should be no over-insistence on certain points nor any waste of time, and that each week the pupils should have a certain number of hours which, without trespassing on the time needed for rest and physical exercise, they may devote to reading and work of their own choosing. The *Proviseurs* should therefore, at the beginning of the year, call a meeting of the masters and *répétiteurs* of each class, which the *censeur* and *surveillant général* should also attend whenever possible, in order to come to an agreement as to the organisation of the work, so as to fix the number of lessons and written exercises to be set weekly by each of them, and also the time normally to be devoted to the preparation of the lessons by the pupils. A table is to be made out showing the work that the pupils are to do each day, and the time to be given to it. A copy of this table, either printed or stencilled, is to be given to each pupil. The masters should insist on its being carefully kept and, in the First Cycle, followed out exactly. In the Second Cycle, while the same regularity in the order of the lessons to be written and learnt is preserved, and hints are to be given to the pupils as to the time that it would be reasonable to give to their preparation, it is necessary to afford them more individual latitude, and, in view of the fact that they are more mature in mind, to allow them [so far as possible] to choose their own time and to follow out their own inclination in regard to preparation. It is important, nevertheless, that their work should be overlooked with a certain discretion, so as to prevent any part of the programme from being neglected on the one hand or, on the other hand, too much time being devoted to certain subjects without much result, owing to want of method.

*Conseils d'enseignement* (meetings of masters taking the same subject in different classes).—It is of the greatest advantage for the masters from the *classe de neuvième* to the *classe de première*, who teach the same subject, whether scientific or literary, to meet at least twice a year, at the end of July and after the holidays. These two meetings will have a twofold result: the masters will gain, in the first place, by learning more with regard to the pupils who will enter their form later, and, secondly, because they will be able to teach with greater certainty

<sup>1</sup> Board of Education Special Reports on Educational Subjects. Vol. xxiv. Secondary and University Education in France. xi+554 pp. (Wyman.) 3s.

and efficacy owing to the unification of special and of general methods. The inspectors-general (*inspection générale*) have often observed that while in the classes examined separately the teaching is generally satisfactory, it is not sufficiently well co-ordinated as a whole, nor carried out with sufficient continuity and method. It is as though each master refrained from comparing his plan of teaching with that of the colleague from whose class his pupils have come and with that of the colleague to whose class they will pass on. It is, however, by such comparison and concerted action on the part of the teachers of the same subject that a clear and complete idea might be attained of the difficulty of the various class-exercises in relation to the attainments of the pupils in the different forms. In particular, the choice of subjects for compositions, of pieces for explanation and recitation, would be benefited by such procedure.

It is at these meetings that an agreement should be reached in regard to the adoption of a common terminology (for example, in the teaching of grammar) and that the question of the books to be chosen for subjects continued through different classes should be discussed, so that the pupils may not be confused by unnecessary changes.

Object lessons are also given in secondary schools, so one does not get a candidate in France, as has been known at one of our highest examinations in England, answering that the prettiest sight of an Italian landscape is the bunches of macaroni growing on the roofs of the houses. Especially interesting are the instructions that have to do with the teaching of the mother tongue. These should be read by every English master, and he will then begin to see why nearly every Frenchman writes his own language correctly and elegantly, and can speak in public without stammering and blushing.

*The Teaching of Literature.*—The teaching of literature should originate from the *study of texts*. The histories [of literature] indicated in the syllabus are intended to supply the pupils with general information and to dispense the master from the necessity of giving a course of lectures. In no case must it be understood that they are to furnish the material for a lesson to be learnt and repeated, or that the pupils are to be accustomed to speak about authors with whose works they are as yet imperfectly acquainted, or of whom they have not even had any portion read or explained to them. These books are to be used as aids and nothing more. The *reading of a text with explanations* must remain as the basis of the teaching of literature. It is from the reading, with explanation, of the works of the chief authors that the master will derive the general literary notions which may be useful either in elucidating or in supplementing the readings.

It is impossible to overestimate the care necessary in choosing the pieces to be learnt by heart. For a considerable time they form the only intellectual pabulum of the children. The importance of fixing in their retentive memories nothing either trivial in meaning or commonplace in form is obvious. It is no doubt not easy to select pieces that are both simple and interesting, but the teacher, gradually, in the course of his reading, will form a collection of passages for his own use, although this will not prevent him from making reasonable use of collections formed by other persons. What is essential is that the pieces given should always be *chosen* by himself, and *chosen* because they correspond to certain needs and fulfil

certain conditions, of which the most important is that they should be understood and liked by the pupils. If a piece is short, expressive, and clear, it will be quickly learnt and easily remembered.

To be simple and orderly—this is the precept to which all others may be reduced. It is the common basis of the instructions issued to a staff which does its duty unflinchingly, and of which the efforts will be more fruitful as they are more clearly directed towards one and the same object.

In fact, one thing only has been abolished, or ought to be abolished, namely, the dogmatic and continuous course on literature, with its too great wealth of interesting details and its abstract formulæ. The manual (*précis*) of the history of French literature, which, from the *classe de troisième* upward, is placed in the hands of the pupils, was intended by the authors of the syllabus, not to replace a systematic course, given orally, by a printed one, but, on the contrary, to free the master from the duty of giving any such course at all, since if it proved necessary he would be able to refer to the manual and make his class refer to it. Teachers have travelled very widely from the use thus contemplated of the manual when they take from it a series of lessons without giving any corresponding readings (and for such readings there would be no time), and when they accustom their pupils to pass judgments on authors of whom they know nothing and of whom none (excepting those who intend to present themselves later at university examinations) will ever know anything.

The fault of this bookish *régime* is not merely one in pedagogy, but in morals. It is a veritable training in insincerity. Of a course given in the sense described, we may repeat what was said by the *Directeur de l'Enseignement supérieur* of certain empty and pretentious subjects set for composition: "They may constitute a dangerous form of intellectual lying, and we should use every effort to exclude them from our educational system."

The instructions on modern languages are more familiar to readers of THE SCHOOL WORLD, as their provisions have been often discussed in its columns. But we may permit ourselves three short quotations:

For if the teaching of modern languages in the First Cycle is at the present time extremely satisfactory in general, yet the transition from the *classe de cinquième* to the *classe de quatrième*, and the teaching of grammar and of literature in the Second Cycle, seem in certain cases not to reach the level desired.

It is curious to find persons in England who seriously dispute the use of French as a mental discipline, when the French themselves consider it in this respect equal to Latin or Greek, one might almost say superior, because, being their own language, it is naturally the better medium for their children.

In modern languages unity of method—at least in the earlier stages—and close co-ordination between the work of the different classes are absolutely essential to successful teaching in modern languages. One imperfectly equipped master, whether at the beginning, which is certainly most fatal, or in the intermediary classes, means not only little progress, but retrogression in all matters connected with accent and idiom. This does not mean that the personality of the teacher is to be extinguished; it merely means that the ground must be staked out within which his personality is to have play. It is probable that if we attain

these desiderata we shall not in the majority of our schools continue the direct method in its strictness throughout the whole school course, but rather, once the pupil has got a good hold of the accent and the vocabulary, do a certain amount of translation into English, if we do not also attempt a certain amount of translation or retranslation into French. The splendid discipline which translation provides in teaching us to match nuances of thought in two different media does not seem to be provided by any other school exercise. In compositions in one's own language one can attempt to express those nuances which occur to one, but in free composition in a foreign tongue the tendency is always to "cut" such difficulties.

In nothing is the French teacher to be more envied than in his freedom from a multitude of examinations. One examination, the *baccalauréat*, admits to the University, and to all the professions, and has to be passed in two parts, with an interval of a year between them, generally at the age of sixteen or seventeen. In 1902 this examination was entirely reorganised, and a candidate can now choose one of four groups: Latin-Greek, Latin-Modern Languages, Latin-Science, or Science-Modern Languages.

Mr. Hartog follows his translation of the curricula with an article on their aim, in which he introduces the results of his personal visits to French schools. His notes on the teaching of morality are particularly interesting at a moment when this subject is coming to the fore in England.

The most valuable article, however, in the volume is that of Mr. Cloudesley Brereton, "A Comparison between English and French Secondary Schools." It was written so long ago as 1903, but it has been brought up to date by a series of footnotes written in 1909. This is a brilliant piece of work, especially when the author shows the advantages and disadvantages of the French and English systems, and how each may learn of the other. His comparisons of the *Proviseur* and the headmaster, of form-masters and expert teachers, of examinations in France and England, of marking, school hours, and home work, are full of information and should yield much food for thought to those who have the direction of education in England.

The difference between English and French school teaching is perhaps nowhere so marked as in the teaching of history, and in no subject except the mother tongue and mathematics is the advantage so distinctly on the side of French schools. This is due to a difference both in the training of the students and of the teachers.

In the first place, the French boy, taught to seize a complex subject by his training in composition, does not require a supply of brief formulæ in order to give a respectable account of himself in the examination room. In the second place, the teachers are specialists in their subject. They have passed the *agrégation d'histoire*, a competitive examination at least as difficult as the Historical Tripos at Cambridge or the Final Honours School in History at Oxford, and in many cases they have been trained in modern methods of research. They speak with a fulness of knowledge and an authority which cannot be expected from a teacher who is required to teach half-a-dozen other subjects, and whose history is the

history of the amateur acquired in leisure hours. It is to be remembered, too, that the French teacher has only from twelve to fourteen hours actual teaching and, say, three to five hours' home work weekly.

We probably make a great mistake in studying our history too much at the outset from the point of view of reigns rather than of movements. We also probably attempt to teach far too many names.

But Mr. Brereton touches even on the psychological differences between the French and English boy, and shows how the former matures sooner, as the result of his race, his education, and his environment. He notes how there is little of that schoolboy atmosphere that in England is so potent, because impalpable, and how strong is home influence in France on boys as well as on girls. When will English snobishness allow boys of all social grades to be educated together in town or suburban schools, where intellectual life is not the last thing thought of, and where the boy is not divorced from his family for three-quarters of the year? When will the innate conservatism of the English allow them to give up the monastic ideals of the earlier Middle Ages?

M. Steeg (Rapport Steeg) thus sums up the general effect of a French secondary education: "Il en subsiste peu de connaissances précises et sûres. Ce qui demeure c'est une certaine manière de sentir, le souvenir élevé de nobles émotions, quelque besoin de penser, quelque curiosité et surtout une précieuse modestie."

While we in England still maintain an arbitrary division between arithmetic and algebra, and have only just begun to banish Euclid from our schools, the French have long since eliminated the imaginary frontier between the first two, and have substituted for Euclid a more simple form of geometry. The result is that the pupil's progress is far more rapid.

After Mr. Brereton's paper, over which we have been tempted to linger too long, comes a "Report on an Inquiry into the Method of Teaching the Mother Tongue in France," by Mr. A. H. Hope, of Manchester Grammar School. As we have already said, this subject deserves a big crusade being made in its favour in England. Few reforms are more urgent than that of making the mother tongue the basis of all education. The London Matriculation includes a simple English paper which often a third of the candidates fail to pass. Mr. Hope's article is followed by one on the "Secondary Education of Girls in France," by Mr. James Oliphant, and by "Notes on the Teaching of Mathematics in the French Lycées for Girls," by Miss A. E. Metcalfe, an inspector under the Board. Then comes "L'Enseignement Supérieur en France," by M. Louis Cazamian, of the Sorbonne, and "L'École Normale Supérieure," by Dr. E. R. Edwards. All these will repay perusal, and we hope we have said enough to make every teacher who is not sunk in apathy purchase this book at once. The misprints we have noted are very few: *au* for *aux*, on p. 210, *nineteenth*, on p. 160, are two; but Mr. Hartog has been lucky in his French correspondence, for

he says that "untidiness in handwriting is one of the rarest of faults in France." We should have been inclined to assert that the handwriting of the average Englishman was easier to decipher than that of the average Frenchman.

### THE ASSOCIATION OF HEAD-MISTRESSES.

SOME 170 headmistresses of public secondary schools gathered from England, Scotland, and Wales for the thirty-seventh annual meeting of the Association of Headmistresses on June 9th and 10th. The president, Miss S. A. Burstall, of the Manchester High School, presided. The members of the executive committee elected to serve until 1915 were: Miss Robertson, Christ's Hospital; Miss Benton, South Hampstead High School; Miss Haig Brown, Oxford High School; Miss Steele, Grey Coat Hospital; and Miss Lowe, Leeds High School.

#### RESOLUTIONS ADOPTED.

Resolutions were carried unanimously supporting those at the Conference of Teachers in Secondary Schools and in Technical Institutions, held on May 6th, regarding the establishment of a system of superannuation for teachers in schools in England and Wales other than elementary, and requesting the executive committee to take steps to press forward the matter of superannuation on the lines of those resolutions.

The following resolutions also were carried during the meeting:

(a) "That this association regards with satisfaction the assurance given by the President of the Board of Education on April 26th last that he would speedily deal with the matter of teachers' registration. It heartily concurs in his hope for a 'solution of the question satisfactory to the various main branches of the teaching profession,' but it is firmly convinced that no such solution will be reached unless the Order in Council establishing a Teachers' Registration Council shall arrange that the council shall be so constituted as to be fully representative of the main branches of the profession, including, specifically, universities, and, further, shall expressly provide that this representative character shall be permanent."

(b) "That this association wishes to emphasise the great importance of securing a certain number of women as representatives on the first and on subsequent councils, not only from the associations consisting of women."

(a) "That no non-resident headmistress should receive from the time of her appointment less than a salary of £300." (b) "That the general range of salaries should be between £350 and £700, but that, in the interests of education, for the sake of the encouragement which is thereby given to all teachers, and the gain in the attractiveness of the teaching profession, there should be, as at present, some prizes of substantially higher value."

"That this conference regrets the increasing difficulty of University Scholarship examinations for girls, and asks the principals of colleges for women at the universities to give the matter their serious attention with a view to lessening the straining of preparation and in examination."

"That in matriculation examinations credit should be given for the school record in compulsory subjects in the case of pupils who have passed through a complete course of studies for not less than four years in a school (a) inspected by the Board of Education, and (b) periodically

examined by a university board of examiners (c) on whose staff there is a certain proportion of registered teachers."

"That it is of the greatest importance to the best type of general education that (a) the co-operation of acting teachers should be recognised and allowed in all school and matriculation examinations; (b) schools should be allowed and invited to present their own syllabuses for school examinations; (c) that in the testing of science teaching inspection should be more prominent than examination, and that the note-books covering a definite and consecutive course of work of the candidates should be taken into consideration in the awards of examinations."

"That this conference desires earnestly to reaffirm the following resolution carried at the annual conference in 1909, viz.:

"That this conference disapproves of external examinations for girls under sixteen years of age, and invites all members of the association to co-operate in discouraging pupils from entering for them, for the following (among other) reasons:

"Primarily, that the growth and development of girls during the critical years from twelve to sixteen demand individual care and freedom from strain.

"Secondly, that such external examinations for young girls tend to prevent that differentiation of curriculum so necessary for the varied needs of different types of scholars.

"Thirdly, that with qualified and experienced teachers external stimulus is unnecessary, and injurious to the teacher's work."

"That this conference desires to call the attention of university examining boards to the great importance of . . . time-tables so arranged as to give the least possible strain on the candidate as regards (a) sequence of subject; (b) number of papers set on one and the same day; (c) the length of the papers."

#### PRESIDENT'S ADDRESS.

Miss Burstall, the president, delivered her address on June 10th. After summarising the progress of the association during recent years, she referred to the question of examinations for girls. "I am quite certain," she said, "as the result of nearly forty years' experience, that the effect of examinations on girls' schools has been injurious, because a system that was needed, and therefore developed, for boys and masters has been applied, when it was no longer needed, to girls and mistresses. It is my firm conviction that there is a real sex difference here, and that if examinations have been injurious, as Mr. Hartog, Lord Cromer, and Prof. Sadler stated publicly this winter, to the education of boys and men, they have *a fortiori* been even more injurious to that of girls and women."

Discussing the question of curricula, Miss Burstall said at this moment there is no more important work lying before headmistresses. "We are suffering from the crowding of the time-table with too many subjects, from the conflict of studies. The public is as dissatisfied as we are, though not so clear in its dissatisfaction. It is for us to lead. Let us be bold. Let us strike out new schemes for omitting certain subjects and for emphasising others. A very high authority expressed to me a few days ago the disappointment that has been felt with our book<sup>1</sup> in that it did not do this work of drawing up typical curricula that would show what a girl's education ought to be.

<sup>1</sup> See THE SCHOOL WORLD, March, 1911, p. 114.

"Men in authority may feel that they could draw up such schemes for boys' schools. They have been boys and masters themselves, but they feel a not unnatural hesitation in saying what ought to be done by different types of girls' schools, what languages, what science, what mathematics, what practical subjects ought to be taught, and what proportion of time should be given. They are waiting for the headmistresses to give a lead. We can each draw up a curriculum for our own school, each of which has its peculiarities, but every other headmistress must do the same. I implore you most earnestly to take this matter into your own hands. Have courage and initiative. Send up your programme to the Board; it will help and sympathise. Even if your particular scheme, excluding Latin or physics, minimising mathematics or geography, specialising in music, art, or biology, is not accepted, it will have done good. The monotony of a general scheme is what we must avoid—a weak endeavour to secure little bits of everything for everybody. This will land us in a second-rate education.

"In some schools, where the girls must leave between fifteen and sixteen, the education may be second-grade, limited, e.g., to one foreign language, but it may be first-rate if the whole curriculum is pervaded by a purpose, or even if one subject only is full of life and originality which spreads its vivifying influence through the whole curriculum. I am not one who approves of much mathematics for all girls, but live mathematics flowing from the zeal and energy of an enthusiastic head is better than dead housecraft imposed to satisfy the requirements of a code of regulations or the prejudices of parents. I would say to each of you, the youngest and least experienced, make the school the expression, intellectually as it is morally, of your own personal initiative. Do not fear either the local authority or the Board of Education, though they are indeed lions in the way. Remember the voice that called to Launcelot on his quest—

'Doubt not, go forward; if thou doubt, the beasts  
Will tear thee piecemeal.'

To-day the opportunity is ours, to-morrow it may be too late."

#### DOMESTIC SUBJECTS IN SECONDARY SCHOOLS.

The conference discussed "Training in Domestic Subjects in Secondary Schools," and passed the following resolutions:

"That this conference fully realises the importance to the community of giving training to girls of all classes in domestic subjects; and desires to place on record its conviction that:

"(a) A consecutive and definite training in scientific method through elementary science should precede or accompany the training in domestic arts; and that illustrations in experimental science should be mainly drawn from everyday life.

"(b) Training in domestic arts should supplement and not replace the general subjects of a liberal education as given in public secondary schools for girls.

"(c) The examination in domestic science (so called) by the Universities in the Junior and Preliminary Local Examinations is to be regretted, inasmuch as (i) elementary science and arts should be inspected rather than examined, and (ii) stereotyped syllabuses are a hindrance rather than a help to the best training and its development."

In proposing the first part of the resolution, Miss Lowe said she was greatly interested in the movement, viz., that all girls should receive some training in domestic arts, and that it should be consecutive and definite, so that the

movement may be more far-reaching in its effect on national life than we of the present generation can realise. That having had absolutely no scientific training herself in all her school life, and having learnt what she knows of domestic matters most inadequately by mere observation, she spoke from bitter experience, and frankly confessed how people may suffer from a lack of scientific training.

It is this last point of view, she continued, viz., that of consecutive and definite scientific training through elementary science preceding the training in domestic arts which it is desired that the conference should place on record. The advisability of the second part of the motion, viz., that illustrations in experimental science should be mainly drawn from everyday life, is so obvious, that it is hardly necessary to plead for it. The former is, however, liable to discussion for two reasons:

(1) There are some who feel that it is better to work the more formal science and the domestic arts separately and even with different sets of girls.

(2) There are difficulties with regard to university work which are likely to arise, from devoting the time of all girls to some extent to domestic science, or the study of domestic arts based on scientific training.

Miss Lowe pressed, in answer to the first, that "every girl should receive at school a scientific foundation on which she can build either as a specialist in domestic arts in the senior classes, at home, or as a non-specialist as a part of everyday life, or in a college. It is not necessary or advisable to aim at making every girl proficient in this subject of home arts, when she leaves the school, provided that she has a sound foundation and the attitude of mind which is the result of definite consecutive scientific training in elementary science with constant application to the problems of everyday life. We do not attempt to produce a proficient classic, mathematician, historian, or modern-language student at eighteen or nineteen, but we do aim at giving them a training which will enable them to cope with more advanced study in their favourite pursuit and to take an intelligent interest in other subjects. This should also be the object in framing the science curriculum in a girls' school with a view of fostering the home arts, and those who have the charge of this subject will have the additional advantage that nearly all girls, even during their school life, are really interested in the care of a house, provided that at school it holds its own with other subjects and is put on an equal footing. In the north it is probably a less difficult problem than in the south, as girls have more regular home duties here and therefore take the work more as a matter of course; but there is no doubt that there has been hitherto just as great a lack of scientific housekeeping in the north as elsewhere, a power to grapple with unexpected problems in the household, and it is this lack that the schools are anxious to meet, and for which we plead when we ask that a definite training in scientific method should precede the training in domestic arts.

"That science so taught is a subject which appeals to the girls is proved by the fact that whereas formerly a considerable number of parents would write to ask for their girls to be excused from science, such excuses are never asked for now, and I do not think that it is because the subject is less difficult, but because it appears reasonable and practical to the girls. Moreover, one constantly hears from parents how even the junior girls have applied their scientific knowledge to difficulties that arise in the kitchen and in other parts of the house. But the ordinary knowledge of home arts without previous scientific training is, I believe, a mistake in a secondary school. It lowers the

subject as one of educational value, and it is apt to become the refuge of the unintelligent or the mentally indolent.

"There is, of course, the great difficulty to meet in respect of the preparation for university science. As matters are at present, the girl who is preparing for a scholarship and who has followed a curriculum with constant application to domestic work, is at a disadvantage by the side of the girl who has followed an ordinary science course, but it still remains to be seen whether in the long run such girls will suffer in the university course, as the enthusiasts for the subject maintain that the attitude of mind gained by the new method will fully make up for a certain want of knowledge, and it is perhaps possible to differentiate the work a little earlier than the Sixth Form, by giving those who hope to specialise in science rather more formal science than those who will probably choose some other subject for special study. However, whether the device succeeds or not, whether for a time scholarship girls are handicapped, and matriculation and intermediate candidates find the work rather hard, I do not feel that these difficulties should stand in the way of the building up of domestic arts on a scientific basis which is recognised by the conference to be sound and of real value in the education of *all* girls, and it is therefore with great pleasure that I propose the resolution which I hope will be passed at this meeting."

Miss Douglas, in introducing the second part of the resolution, said: "In this matter of housecraft teaching there are, broadly, two groups of girls whom we have to consider: those who will follow immediately after leaving school some special career (academic or industrial), and those who will leave school to be at home. For both sets some teaching in housecraft is essential, and it should have its place in the curriculum of the school, because there, and perhaps there only for the majority, can it be systematically taught. Theoretically this training in housecraft should form part of the home training, but practically this is rarely possible. If it is to be well done, a girl's mother must plan out a real course for her daughter, make a time-table and keep to it—this is scarcely ever possible either during a girl's school years or after she leaves school, if she goes straight on to college or to some special work.

"Every girl will be concerned sooner or later with household matters; therefore really good teaching and training in these should become a part of her education at school, and it will be necessary to modify in some way the curriculum of the middle school in order to secure this.

"The curriculum is already heavily weighted, and to add another subject to it seems difficult; to allow housecraft to replace another subject is quite impossible, if we are to give all the girls the full intellectual training they require. But it might be possible to reduce the time given to some subjects, at any rate for one year, so that adequate time may be allotted to the domestic arts. Training in *one* of these should belong to every form in the middle school, perhaps in this order: *Needlework* in all forms up to about the age of 14; *Housewifery*, 14-15; *Cookery*, 15-16.

"The work should be of a practical nature and in the hands of a capable mistress, who has had herself a liberal education and has some kind of academic qualifications, who would make the girls establish theory on practice, and who would not blunt their intellect by turning them into machines. Some such modification of the science scheme as that dealt with already might well be made: this need not prevent a girl from specialising later in science, any more than a lesson or preparation time fewer for a year or

so in French and mathematics and some other subject would spoil her work in these directions.

"But it must be clearly understood that in all these household subjects the attainments will be of an *elementary nature*, though they will be sound foundations upon which much may be built later. It is extremely probable that at home a girl will be taking some active part in the household work, so she will be frequently exercised in what she has already learnt at school. The very large majority of girls who have had some good training in these practical matters, and who after school follow a special career, will be quite capable later of developing on the practical side according to the necessity of their position in life: and they will consequently adjust themselves better to the demands that life and the home will make upon them, and to their duties in all directions.

"For these girls, therefore, who have a definite career in the world, this domestic training is necessary, and should have its right place in the liberal education offered to them.

"For the girl who after school will be at home, systematic domestic training is none the less important. This girl as a rule leaves school far too soon, and this is partly the fault of the curriculum of the upper forms, which for her is too academic. Unless some wider choice of special subjects be made possible at the top of the school, we shall continue to send out from our schools girls who are sure to become wastrels.

"We should offer them something of much value in two directions—the practical and intellectual—and so make their school life longer and more useful. It should be possible for them to take a special course in housecraft of a somewhat advanced nature, and to study subjects of general culture in a manner befitting their age and position in the school. They would be thus far better prepared for home duties, and when they left would be old enough and developed enough to realise that life after school was not mere holiday time in which one need not do anything particular. The standard in the domestic and intellectual subjects should be high enough to demand good, vigorous work; and the time and attention given to both groups should be very carefully considered, lest it should happen that domestic arts should be developed by the sacrifice of the other subjects.

"The girl who goes home will give much of her time and energy to domestic matters, and maybe to a narrow round of social duties, often to very small things. She should have every chance at school of intellectual culture, so that she may acquire the right food for her mind at home.

"If on one hand we do not wish to produce Mrs. Jellybys, on the other we do not wish to train at our schools the merely skilful housekeeper with no thoughts or interests beyond the economy of her household: but rather the woman whose sphere of usefulness is wide because her qualities of hand, heart, and mind have been developed by a wise and liberal education.

"At the top of the school *domestic arts should replace some other subjects*, because the girl is old enough to specialise; in the middle school *domestic arts must be supplementary*, so that the education we give in our secondary schools may be really liberal. And we must take care that at no time in her career is undue importance given to these six hours a week in specialisation time. They are to some more attractive and apparently much more useful than many other subjects of the curriculum: their results are immediate—in a small way, of course; but who can say the same for geometry, for instance?

"Housecraft, therefore, must supplement other subjects in a girl's general education—and in order to bring this about two hours in the week must be taken from the lesson or preparation time in two or three subjects of forms in the middle school—but never must housecraft be allowed to replace any subjects, except where specialisation rightly begins, and there it should not occupy more than six hours a week."

In proposing the third part of the resolution, Miss Leahy said: "Many of us feel that it is iniquitous that examining bodies should endeavour to force a process of cramming undigested knowledge on children of twelve or even of fourteen. But there are degrees of iniquity. It is worse to have a public examination for children of twelve or thirteen than for children two or three years older, and it is worse to have an examination for babies in so-called domestic economy than to have an examination in arithmetic or French. May I be allowed to quote from the syllabus of the Oxford Local Preliminary? 'Children (presumably of twelve or thirteen) will be examined on the following subjects: Food, its composition, properties and nutritive value and functions; preparation and culinary treatment generally. Beverages, nutritive value and function. The dwelling, warming, ventilation and cleaning. Rules for health, clothing, personal cleanliness, common ailments and their remedies and (last but not least) the management of a sick-room.' Comment is superfluous. What has such a syllabus for children to do with education on scientific principles? One wonders that such a syllabus can have been drawn up in the year 1911. One wonders still more that the name of a great university is attached to it."

"Let me emphasise the fact that we deplore the existence of such an examination, not because we do not care about domestic science for our girls, but because we care so much about it. We regard it as vitally important, and therefore wish to see the development of the best possible training. We wish to see the foundations well laid, and no flimsy structure erected thereon. We wish to see our girls taught to apply scientific method to household management, and we regard it as a retrograde step to encourage the acquisition of mere snippets of information at an immature stage of development."

"We may be met with the argument that examination syllabuses serve as a guide to teachers working in small and isolated schools. Let us boldly say that the teacher who is worth anything will not want to be propped up by an artificial and cramping syllabus. The right principle is that the teacher should lead and the examinations should follow."

### ASSISTANT-MISTRESSES IN CONFERENCE.

THE summer meeting of the Incorporated Association of Assistant-mistresses in Public Secondary Schools was held at the Ladies' College, Cheltenham, on May 27th. During the morning demonstration lessons in domestic science were given by Miss Kilroe and Miss Goldsmith, members of the Cheltenham College staff, which science mistresses were specially invited to attend.

The business meeting was held in the afternoon. The president, Miss Lees, in her opening address, expressed the pleasure of the association in holding its summer meeting in a school so intimately bound up with all that was best in secondary education. She also alluded to the services rendered to the association by Miss Laurie, a member of

the Cheltenham College staff, who had held the office of president for two years and served many years on the committee. The report of the year's work was then adopted.

The following resolution was carried unanimously:

"That the Government should, without unnecessary delay, proceed to the constitution of a Registration Council, representative of the profession and in accordance with the Education (Administrative Provisions) Act, 1907, to which should be entrusted the duty of forming and keeping an effective register of teachers."

The principal of the college, Miss Faithfull, expressed her pleasure at being able to welcome the association at Cheltenham. No one could be more appreciative of the work of assistant-mistresses than herself. Meetings of this kind she regarded as of very special usefulness. Dealing, as teachers had to do, with a great deal of detail, and fixed as their attention was on the methods of their own school, it was most essential, in order that defects might be remedied and new departures initiated, that they should get away from time to time to discuss the problems that affected their educational work. Such a gathering as this brought fresh ideas, the new stimulus of warfare, and last, but not least, the pleasures of comradeship.

Miss Oakden read a paper on the "Teaching of Domestic Science at Cheltenham Ladies' College."

This was followed by a paper by Miss Elizabeth Lee, secretary of the English Association, on "English Literature in the Schools." In the course of her paper Miss Lee said: "In our teaching to-day too much is expected of the teacher and too little of the pupil. While it is essential that the teacher of literature should be a competent guide and interpreter, she should be careful to give her pupils ample opportunities for using their own wits. Two practices, often neglected in our schools to-day, would ensure greater self-reliance in the pupil; the encouragement of more private reading on her part and the substitution of oral work in class for the voluminous note-taking now in vogue. While in the present age, everybody reads and apparently takes pleasure in reading, there is, except within a limited circle, little reading of an effective kind. The teacher of literature could do much to remedy this condition by recommending certain accessible books to be read in connection with the work done in the literature class. It is sometimes foolishly argued that such reading prevents the pupil from developing original ideas. But, as a matter of fact, original ideas are very rare. Each one of us is the heir of all the ages, and reading, instead of killing original thought, will be more likely to stimulate it."

"The pupil should be guided to make her own researches. Annotated editions should be forbidden (except in special circumstances in the upper forms), but every pupil should acquire on entering the school one or two simple books of reference of her own, an English dictionary, a classical dictionary, a well-edited and well-selected anthology of poetry and prose, and should have access under proper supervision to the school library, the English section of which should be carefully classified on the shelves."

"The starting point for the oral work in class should be good reading aloud by the teacher of the text to be studied, much oral interpretation of it by the pupil, as well as free oral reproduction of what has been read and taught in class."

Among other ways in which literature teaching might be improved, Miss Lee mentioned syllabuses framed on a more coherent and scholarly plan, better arranged and more scholarly reading books, wide use of extracts and selections



drawn from a greater variety of writers than is now usual, the banishment of all abridgments, simplifications, stories from great authors, and the inclusion in every syllabus of some contemporary verse.

Miss Lee, in concluding, pleaded for the historical and the æsthetic study of literature in the school. Neglect of the first prevented the pupil from fitting the texts studied into their proper background, and of the second caused a lack of feeling for literature as an art. Although the history of literature should never be allowed to usurp the study of the texts, it ought always to supplement it. The æsthetic aspect of great literature ought never to be ignored. The teacher of literature should aim at cultivating the imagination, developing the thinking faculty of the pupil, and at showing the lasting pleasure afforded by ability to read the works of great writers with intelligence and sympathy.

Some simple teaching of poetics might well be given, if it was only to point out the construction of a play, the form of a lyric, the progression of the argument in an essay. A feeling for literature, while it cannot be taught, can be communicated to the pupil if the teacher possesses it herself. She wields a mighty instrument for endowing those under her guidance with that appreciation of beauty wherever it may manifest itself, that adds so greatly to the joy of living.

### SCOTTISH EDUCATION.

THE annual report of the Committee of the Privy Council on Education in Scotland for the year 1910-11 has just been issued. The far-reaching character of the Education (Scotland) Act of 1908 is only now beginning to be seen, and the introductory pages are largely taken up with bringing home to the education authorities the extent and variety of their duties. The value of the report is much enhanced by the admirable outline given of the function of the various authorities engaged in the work of public education. The Act of 1908, while providing for a carefully articulated and co-ordinated system of education, failed, owing to Parliamentary opposition, to give unity of administration to all grades of education, and consequently outsiders have much difficulty in grasping the complexities of our administrative system. The outline referred to above brings order out of the seeming chaos.

School Boards, popularly elected for each parish or burgh, still remain the fundamental authority for education. Experience, however, showed that there were functions which transcended the sphere of the ordinary School Board, and accordingly burgh and county education committees were established. The duties of these bodies are to co-ordinate the efforts in the matter of secondary education of all the School Boards in a wide area, to provide means for the better maintenance of central secondary schools, and by means of bursaries and maintenance allowances to facilitate attendance at them from the out-lying districts. Even in the sphere of primary education these committees discharge highly useful duties, particularly in regard to medical inspection and to the provision of specialist itinerant teachers in subjects such as physical exercises, school gardening, manual work, and cookery. But there are still other educational services relative to the country as a whole which transcend the province of burgh and county committees. Of these, the most outstanding is the training of teachers. This is administered by provincial committees in connection with each of the four Scottish universities, and containing representatives

of School Boards and other bodies interested in the training of teachers. Finally, there are the governors of "central institutions," such as technical colleges, schools of art, and colleges of domestic science, who exercise functions analogous to those of the provincial committees. Pending the creation of areas large enough to administer all grades of education, it is well that the annual report should contain this clear and interesting review of the functions and duties of existing authorities. The whole report will amply repay perusal; but the following extracts are of special interest.

#### GENERAL FUNCTIONS OF SCHOOL BOARDS.

Apart from the management of schools under their own charge, School Boards have always exercised certain general functions under the Education Acts in relation to the children of school age in their district, irrespective of the school which these are attending. It has always been their business to provide a supply of suitable and suitably distributed schools for their district, and to take measures to secure that all children of school age within their district were receiving an efficient education, whether in these schools or elsewhere. Later Acts imposed upon them certain duties as to the education of blind and deaf-mute children, and gave them certain powers as to the education of "defective" children. The Act of 1908 added very largely to the general functions of School Boards. It gave them certain additional responsibilities and powers as to the health and general well-being of children of school age, and, what was more important still, it placed upon them new and far-reaching duties in relation to young people who had left school and had entered upon employment.

#### LABOUR BUREAUX.

We have again to confess to some disappointment at the small extent to which School Boards have availed themselves of their powers under section 3 (5) to establish agencies for aiding the parents of children leaving school in their choice of future employment. It may be that School Boards in general are as yet a little bewildered by the somewhat novel idea, suggested by various sections of the Act, that their responsibility in relation to the children and young people of their district does not cease on the latter attaining the age of fourteen, and that their education both before and after that age should have at least some regard to their probable future employment and mode of living. It may also be that some Boards, otherwise willing to act, have stayed their hand through misconception as to the functions of the labour exchanges established under another Act. The function of the agencies referred to in the Education Act is totally distinct from that of the labour exchanges, and while the establishment of the labour exchanges for wide areas may in many ways facilitate the work of the School Board agencies, it does not make the establishment of the latter by individual School Boards any the less necessary, but only the more feasible. Thorough knowledge on the part of School Boards of the occupations actually entered upon by young people, when they pass from the day schools under their management, is not only an essential pre-requisite of any sound system of continuation-class organisation, but is needed by teachers as a directing influence in ordering the work of supplementary courses for children who have not yet left school. It is inevitable that the teachers in charge of these courses should exercise an important, if not determining, influence upon the choice of occupations by the pupils under their charge, and it is essential that in this work they should have the assistance and support of the

agency which the Act of 1908 empowers every Board to establish for itself.

#### SIZE OF CLASSES.

It has long been felt that the number of children in a class taught by one teacher has been excessive, such an arrangement militating against educational efficiency. Notice of an impending change was given in the prefatory note to the Codes of 1910 and 1911, and the Department has now embodied its proposals in a minute, dated March 27th, 1911, which has been laid before Parliament for a period of three months with the view of affording opportunity for their full consideration by all concerned. The minute provides that where the average number of pupils on the register to each *certificated* teacher is greater or less than fifty, the grants shall be reduced or increased by 1 per cent. for each unit above or below fifty, but any increase shall not have effect in respect of any number below forty. It is further proposed that no grant shall be paid in respect of any class of which the average number on the register throughout the year exceeds sixty, unless the managers satisfy the Department that the excess was due to unforeseen circumstances over which the managers had no control. The new regulations will become operative in respect of any school year commencing on or after August 1st, 1911.

#### CONTINUATION CLASSES.

The stimulus given to the institution of continuation classes by the Act of 1908 has again been demonstrated during the past year. Probably the change of procedure by which continuation-class authorities were requested to submit to the Department a definite programme of work some distance in advance of the opening of the session instead of after the session had started, had something to do with this. We have found the change profitable in several ways. (i) It helps to make the continuation-class question a live one the whole year round. Hitherto a dangerous state of coma has frequently ensued upon the close of a session, often resulting in loss of interest and the death of the class. Now, the interest of managers in their continuation classes is less likely to flag, inasmuch as they require early in the summer to prepare their plans for the autumn. (ii) It calls upon managers themselves to determine their coming programme—after a careful survey of the needs of their area—rather than to leave the programme to be decided by the demands of intending pupils on enrolment night. (iii) It gives time for the discussion of subjects of general application—e.g., organisation, affiliation, and so forth—before the detailed proposals come up for examination.

#### COMPULSORY CONTINUATION SCHOOLS.

With regard to the provisions of section 10 (3) of the Act of 1908, whereby School Boards are empowered to make bye-laws requiring the attendance of pupils at continuation classes up to seventeen years of age, it is interesting to note that eleven School Boards have received confirmation of such bye-laws. The bye-laws submitted for confirmation by three other School Boards are now under consideration, and there is evidence that the subject is engaging the attention of a rapidly increasing number of School Boards throughout the country. It is very satisfactory to note, with regard to the bye-laws already confirmed, that no objections to their confirmation were lodged with the Department, and that up to the present they appear to have worked smoothly. The extent of the application of the bye-laws is a matter of interest. In some cases their application is restricted to young persons under sixteen years of age who have failed to

pass the Qualifying examination—a very modest requirement indeed, but one which nevertheless serves as a useful beginning. In other cases it is found that the clause requiring attendance at continuation classes up to the age of seventeen years extends to young persons who have failed to reach the standard of education implied by two years' attendance at a supplementary or intermediate course. In all cases a clause is inserted to permit of the School Board granting exemption from the operations of the bye-laws in any particular case—an indispensable condition, and one which should provide sufficient security against any cases of individual hardship which may arise.

#### NOTES ON GERMAN EDUCATION.

THE German Bund für Schulreform has issued a pamphlet containing, *inter alia*, a summary of views and aims by Prof. Meumann. In it the claim is advanced that the present system of education must correspond with the demands of science as put forward by pedagogy, technology, and philosophy. It must, further, satisfy the demands of practical life by forming connections between school and home and also between school and the future occupation. It must be able to co-operate with the factors of modern civilisation: that is, by educating the pupil to be independent and self-reliant, it must help to realise contemporary ethical and aesthetic ideals. It will be seen that the reformers are no amateurs seeking the limelight, but practical men endeavouring to ensure due attention to principles. They are assisting the pedagogic movement, which became manifest at the end of last century as a result of the alterations in our views of life and society, partly by assigning less value to positive knowledge, partly by preaching the need for a more harmonious development of human faculties, but, most of all, by striving to establish different relations between teacher and taught, in which the latter will not be kept in a state of passivity, and both will have opportunities for cultivating the will as well as for imbibing or transplanting knowledge.

AN information office for parents has been opened in Cologne under the auspices of the Teachers' Association. It will advise parents on the choice of a career, make arrangements for the apprenticeship of boys and girls, assist parents at the critical time when the child is transferred from one school to another, and issue recommendations as to literature for children. Its functions will doubtless come to embrace other objects, notably the provision of reading rooms for children, but money is not yet forthcoming for such departures. The management is in the hands of a council consisting of teachers, doctors, and lawyers. An attempt will be made to enlist the co-operation of educated young people of the better classes, especially university students. In many respects the English university settlements will be taken as a model.

UNDERGRADUATES and schoolboys who have to attend early morning chapel will agree with the conclusions put forward by Prof. Storrington on the value of early morning work. By means of a series of experiments, conducted at 7 a.m. on weekdays and 10 a.m. on Sundays, he comes to the conclusion that the body has not recovered from the previous day's fatigue at 7 a.m. In his experiments he tested the surface sensibility at two points and the brain activity by counting. In each case the result was the same, and the writings of Wagner and Griessbach are called in as confirmatory. It may be pointed out that the pupils subjected to experiment were day boys, who had probably made a fairly long journey to school. No inquiry

seems to have been made as to the time at which they retired to rest, and without this information no great value can be attached to the results.

At the beginning of October the Swiss Lehrertag will be held in Basel, where, at the Isaak-Iselin School, an exhibition of school buildings, manual training work, and drawings will be held. The principal subject for debate will be the reform of the curriculum by the provision of practical teaching in physics and chemistry.

RECENT expressions of opinion on educational affairs by Grand Duke Ranier and Countess Lonyay have aroused considerable attention in Austria. The Grand Duke takes up an attitude antagonistic to the clerical party, demanding greater freedom for the teacher and more attention to the formation of character. The ex-Crown Princess complains of the backwardness of the primary school and the wrongheadedness of the well-to-do, who consider it their mission in life to enjoy themselves. She calls education the most democratic of interests, and ridicules the inspection of the primary school. This is preceded by a general tidying-up and the provision of clean clothes. In the presence of a crowd of visitors the bewildered children are rushed through their work, with the result that the whole performance is no more a test of their ability than a Sunday-school treat is a rest for their bodies. Further, the time of school attendance is too short and the syllabus is overcrowded.

In anticipation of a new School Act in Hamburg, a series of resolutions have been passed by the principal association of teachers. They deal with: (i) Organisation: Primary schools should be organised on the principle of the *Einheitschule*, and be organically connected with the secondary schools. The normal class should contain thirty pupils, and special classes should be formed for defective children. Religion should disappear from the curriculum. (ii) Management: Parents and teachers should be organised as: school managers, with care of *personnel* and oversight of domestic matters; and school governors, with care of *matériel* and oversight of attendance. (iii) Inspection: School inspectors should be appointed from those with long teaching experience; they should form the lowest court of judgment, and should allow teachers more freedom in method. The school staff should be organised as a republic, the head of the staff occupying an honorary post, for which he is chosen by the staff. (iv) Training: The training college should rank as a nine-class secondary school. Professional training to be in the charge of a faculty of education, the certificate of which shall admit to appointment. After four years' service the appointment to be permanent. The women teachers have also sent in a memorial demanding that more members of the boards should be women, that attendance at the continuation school should be compulsory for girls up to the age of eighteen, and that university education should be open to women teachers who wish to qualify as *Oberlehrerinnen*.

"THE first fundamental principle of a rightly organised continuation school is that it must extend to the eighteenth year of every boy or girl who is not being educated in a higher school. It is of no advantage to a constitutional State to make its opportunities of culture accessible only to a small percentage," is the opinion of Dr. Kerschensteiner, Superintendent of Schools, Munich, as stated in a lecture on the Organisation of the Continuation School in Munich, reported in a recent issue of *The School Review*. German opinion that compulsory attendance at a continua-

tion school is indispensable is opposed to opinion in England; but how many English towns can point, like Munich, to about 93 per cent. of its boys and girls between the ages of six and eighteen in attendance at public schools, as well as to an average of 330 hours in the year instruction for the pupils in the continuation school? This great result is based upon a close connection between the teaching and the trade of the pupil, upon the provision of workshops and laboratories for practical work as the centre of the entire organisation, and upon the attitude of regarding technical education only as means for mental and moral training. The youthful worker is to learn the real meaning of joy in work because his school fills up the gaps left in his education by the present economic conditions of life.

THE organisation of the schools in Munich is as follows: (i) Age three to six. Kindergarten—voluntary attendance, fees to be paid. (ii) Age six to fourteen (boys), six to thirteen (girls). Primary school—compulsory, no fees. (iii) Age above ten. Higher schools (twenty-seven in number)—voluntary attendance for preparation for the professions; fees about 4s. a month. (iv) Age over fourteen (boys), thirteen (girls). Compulsory continuation school; no fees. Boys must attend during apprenticeship, but not above eighteen; girls for three years. (v) Age over eighteen. Optional continuation school. Fees 2s. to 4s. a month. At present the girls' continuation school has three hours' instruction per week; next year this will be doubled; the work is mainly domestic, but it is expected that as the demand for good girls' schools increases the organisation will be extended to industrial pursuits. The boys' continuation schools have from eight to ten hours' instruction per week, of which either a whole day or two half days are taken from the work time; in some cases wages are paid for this school attendance. There are 52 trade schools and 12 general schools for these boys, of whom there are 9,000. There is a trade school for each trade which has more than 25 apprentices, and to most of them is attached an association of employers, "who bear the expense of school material, take part in the discussions on the plan of instruction, have the right of proposing technical teachers, assist in the supervision of the practical subjects, co-operate in the examination of apprentices, and help to spread interest in the school and to further its prosperous development."

## THE SCHOOLS AND MEDICAL STUDENTS.

At the meeting of the General Medical Council held on May 29th, the following resolution was adopted by a majority of 24 votes to 5: "That it be an instruction to the Students' Registration Committee that when a secondary school has been inspected and recognised by a licensing body and has applied to be placed on the list of approved institutions in which medical study may be commenced, the Registration Committee shall consider every such application, and, when satisfied that the education in such secondary school is of sufficient standard, shall recommend such secondary school to be placed on the list of approved institutions." If this instruction is fairly carried out, which we have no doubt will be the case, it becomes possible for a public school where facilities for work at elementary science are generous and the teaching efficient to be approved by the Council; hence boys at such schools will be able to avail themselves of student registration with the Council, and will not be under the necessity

of repeating their work in elementary science at some other institution in order to conform to the regulations.

This decision of the General Medical Council will, we believe, have far-reaching effects upon the education whilst at school of boys preparing for the medical profession, and we heartily congratulate the Council upon coming to it, as also the Association of Public School Science Masters, which during the past four years has been agitating for the reform. Under the new scheme, the public schools gain, not only by the obvious fact that they can teach elementary science being formally recognised, but by being able to keep boys intended for the medical profession until the age at which the chief benefit of public-school life is obtained; the candidates gain by being allowed to learn their preliminary science under conditions in which they receive more individual attention than is possible in the hospitals; but the chief gainer will, in our opinion, be the General Medical Council itself. For, since student registration is not essential and the Council is obliged to register as a medical man any candidate who has been accepted by a licensing body, it depends upon the latter whether they insist upon student registration or not. At present neither Oxford, Cambridge, nor London Universities require it, nor does the Conjoint Board of Physicians and Surgeons, the result being that a very large number of medical students are not on the register; we have no doubt that under the changed conditions this will be altered. Two points require attention from those schoolmasters who propose to avail themselves of the action of the General Medical Council: (i) unlike "recognition" by the Conjoint Board, "recognition" by the Council must be followed by registration of the student whilst he is still at school; if this is not done he gains no benefit; (ii) it is necessary before deciding upon the best course of study for a medical student after he has passed a qualifying examination in general education to consider the requirements of the licensing authority whose examinations he proposes to take.

### HISTORY AND CURRENT EVENTS.

THE people of Normandy have been celebrating a millenary this year. In the year 911, Charles, King of the Franks, great-grandson of the great Emperor Charles, and known to history under the cognomen of "the Simple," granted to Hrolf the Viking and his followers the territory between Paris and the Channel which grew later into the duchy of Normandy. The northern warriors had been defeated in England and Germany, and they had turned their activities against the weakest of the kingdoms. How they became Christians and "Frenchmen," how they conquered south Italy, and led Christendom to conquest in Palestine, how they supported the reforming party in the Church in the eleventh century and helped to restore the Papacy, how they acquired the English kingdom for themselves and for Western Christendom, is too long a story for us to tell here. Their connection with England, after lasting two hundred years (did England then own Normandy or Normandy England?), was broken by Philip Augustus, King of the French, pursuing a natural, if not a national, policy of uniting the fiefs of "France" more closely to the crown. Two centuries later, England conquered Normandy and held it for a short time, governing it in an English way so well that many Normans regretted their reconquest by Charles VII., and since that time the "duchy" has been part of the French kingdom.

BUT, we may be permitted to ask, in what sense does Normandy still exist? How can it be said to have sur-

vived the whole of the thousand years since Hrolf ceased to be a heathen Viking and became a Christian duke? For, if we look at the map which represents France for the last hundred years or more, we seek in vain for the word "Normandy." Instead, we find "Calvados" and four other "departments" named after natural features. "Normandy" has disappeared. This was the work of the French Revolution of 1789, completing the work of French kings in unifying the country and so welding its previously diverse peoples into a nation that "Norman" and "Gascon," "Provençal" and "Burgundian" should be forgotten in the one designation of "French." But so persistent are old ideas, so difficult is it to eradicate nationality, that, as the "sou" still survives alongside of "cinq centimes," so "Normandy," "Brittany," and the rest of the provinces of the old system have held their ground in spite of Parisian centralisation, and, to foreigners at least, these names are known, while the artificial designations of the departments are ignored. "Normandy" celebrates its full thousand years, in spite of uniformity.

OUR latest "revolution" still drags its weary way. The House of Commons, or at least the majority (and we are in the habit in England of speaking of a majority as the whole of the body, as we do, for example, in the history of the Long Parliament of 1640), seem determined, having made the King's "veto" long obsolete, to limit the "veto" of the other factor of the legislative executive body. But because we have legalised "revolution" in this country, and neither party anticipates proscription or attainer in the case of defeat, arguments and counter-proposals take the place of military demonstrations. Hence we have an alternative to the "Government" scheme, a series of proposals by Lord Lansdowne. To most of these we can find no close historical parallels, but one of them curiously recalls a Whig device of the early years of the Hanoverian dynasty. The Whigs of 1719 had George I. in their power, but feared the Prince of Wales, who was in opposition to his father. They proposed to limit the power of the Crown in the creation of new peerages, so as to secure the House of Lords for themselves as well as the House of Commons. Walpole happened to be in temporary opposition to his fellow Whigs, and brought about the rejection of the "revolutionary" proposal.

"It is decreed that henceforth no one be persecuted for religious motives." What is persecution? How does it differ from the imposition or maintenance of "religious disabilities"? The Portuguese Government, the report of whose most recent action we have quoted, "has encumbered the decree" (so the source of our information continues) "with a number of restrictions which will provoke opposition from all the churches alike." We suppose that there is no country where public opinion as well as law is more thoroughly opposed to "religious persecution" than in Great Britain. Yet a meeting in London in May last unanimously called on the Home Secretary "to take steps to restrain the preaching of Mormonism." Would this be "persecution"? In Egypt the majority of the people are Moslems, and their weekly rest-day is Friday. "The Copts feel this to be a real grievance, as their young men at college must attend lectures on Sunday and Government officials must be at their post," &c. Is this "persecution" or "religious disability"? or why should not the Copts do as some Jews in England are now doing, and transfer their "Sabbath" to the day of the week adopted by the majority of their fellow citizens? What did the early Christians do?

## ITEMS OF INTEREST.

## GENERAL.

We had hoped that education would be more prominently represented in the Coronation honours. Yet it is satisfactory to find the names of some men who are eminent for their educational work. Sir William Anson and Dr. Macnamara have been made Privy Councillors. Dr. A. W. W. Dale, Vice-Chancellor of the University of Liverpool, becomes a Knight, and Dr. H. F. Heath and Prof. Michael Sadler are made Companions of the Bath.

At the end of May, too late for reference to it to be made in our last issue, a meeting of teachers in secondary schools was held at the Manchester Grammar School in support of the formation of a register of teachers, a scheme to ensure pensions for teachers in secondary schools, and the representation of secondary education in the House of Commons. In an inspiring speech, the headmaster of Eton said he was able to give the meeting an assurance that the establishment of a Registration Council is nearer than it has been before. He has reason to believe, he said, that proposals for such a council are now available which will receive sufficient support from all the main branches of the teaching profession to justify the Government in bringing a council into existence. The following resolutions were also adopted: "It is desirable that a scheme should be devised to ensure pensions for teachers in secondary schools"; "The interests of secondary education need representation in the House of Commons."

The principal objects of the Education (School and Continuation Class Attendance) Bill introduced by Mr. Runciman in the House of Commons on May 26th are given in a memorandum prefixed to the Bill. They are to abolish the existing half-time system, to enable local education authorities to compel the attendance at continuation classes up to the age of sixteen of children who have ceased to attend a public elementary school, and where this compulsion is not applied to make fourteen the normal age for leaving school. At present, the age at which a child under the age of fourteen can obtain exemption from school attendance varies according to local bye-laws, and depends either upon previous attendance at school or upon a test of proficiency, or upon a combination of the two. The Bill proposes that the obligation to attend school shall be universal up to the age of thirteen, and statutory instead of dependent on local bye-laws. Beyond that age the Bill requires that every child must either continue to attend school up to the age of fourteen or (where the principle of compulsion to attend continuation classes up to the age of sixteen has been adopted in the locality) obtain special exemption from attendance at school on the ground that he is about to enter into beneficial employment. If exempted, he will become subject to the liability to attend the classes. There are, however, two exceptions to the generality of this statement, viz.: (a) authorities will be empowered to make bye-laws compelling the attendance at school of children between fourteen and fifteen; (b) children who are to be beneficially employed in agriculture may be specially exempted from school attendance at thirteen, even where there is no provision for compulsory attendance at continuation classes. The system, therefore, will disappear by which children employed during part of the day or week are compelled concurrently to attend an ordinary public elementary school.

THE report of the Departmental Committee, of which Mr. C. P. Trevelyan, Parliamentary Secretary to the Board

of Education, was chairman, appointed to inquire into the administration of educational endowments, has now been published (Cd. 5662). The terms of reference to the committee were to inquire into the administration of (a) endowments the income of which is applicable, or is applied to or in connection with, elementary education, and (b) small educational endowments other than the above, in rural areas, the application of which to their proper purposes presents special difficulties; and to consider how far under the existing law it is possible to utilise them to the best advantage; and whether any, and, if so, what, changes in the law are desirable in the direction of conferring upon county and other local authorities some powers in respect of such educational endowments or otherwise. Among the large number of recommendations made by the committee it is suggested that, subject to exceptions and modifications, county councils, as local education authorities for the purposes of the Education Act, 1902, should perform the functions at present performed by the Board of Education with regard to the administration of educational endowments; that there should be an appeal to the Board of Education from any scheme made by a local education authority; and that the range of educational objects to which trustees may apply their funds should be extended.

THE Board of Education has announced already that it has under contemplation changes in the regulations which will enable students following degree courses in the elementary training departments of universities to take a four years' course, giving the first three years to work for their degree and the fourth year for professional training exclusively. In connection with these changes the Board is proposing to reconsider the question of the special requirements at present laid down with regard to the qualifying examinations of students intending to follow degree courses. The Board thinks that, in view of the more favourable conditions under which students following a four years' course will now be able to work for their degrees, it may be possible to relax as regards these students some of the special requirements that were considered necessary under the old conditions. The Board hopes that it may be possible to publish the provisions with regard to the four years' course in time to enable the university training departments that would be affected to admit students under the new conditions, if they desire it, from next autumn. The Board is prepared to allow the authorities of university training departments and training colleges to admit next September students who have passed in all the required subjects in one of the qualifying examinations, but have failed to reach the prescribed higher standard in English or in history, or in both of these subjects; provided that these authorities are able to state that on the information before them they consider that the candidate is well qualified to pursue with success a course of study terminating in a degree.

AN impetus will be given, by the good fortune which has fallen to the King's College for Women, to the experiments which are being made in colleges for women and schools for girls with the view of settling what is the best kind of training in science for women whose future work will lie in the home. It was announced on May 26th that £50,000 had been subscribed for the endowment of a national scheme of home science in connection with the women's department of King's College, London. £20,000 is to provide a hostel for the practical training in domestic arts and as a residence for women students, £20,000 will be devoted to building and

equipping laboratories, and the remaining £10,000 will, it is hoped, be supplemented so as to provide £60,000 for the endowment of salaries for professors and lecturers. The Queen has shown her sympathy with the scheme by allowing her name to be associated with the new hostel.

At the annual general meeting of the Teachers' Guild, held at Worcester on June 5th, the following resolutions were passed unanimously: (i) This meeting reaffirms the resolutions already passed by the Teachers' Guild in the matter of the registration of teachers, and enters an emphatic protest against the vexatious obstacles that the Board of Education has offered to the formation of a Registration Council, on the constitution of which the whole body of teachers, through the representatives of their several associations, have expressed their agreement. (ii) (a) That local education authorities should be encouraged to make grants to private schools which are, in the opinion of the local authorities, contributing to the supply of efficient education within their area. (b) That this conference is of opinion that private schools should be eligible to receive grants and other forms of State assistance on conditions which, on the whole, are not less severe than those required for public schools. (c) That private schools which do not seek State assistance should, as at present, be recognised by the Board of Education, greater regard being paid to the individual circumstances and aims of such schools than has been the practice hitherto. In particular, recognition should not be refused to a school on the ground of non-compliance with conditions which are not requisite for efficiency in the case of the particular school under consideration. (iii) That the time has arrived when no child should be allowed to leave school before the age of fourteen years.

WE have received from the Associated Board of the Royal Academy of Music and the Royal College of Music the syllabus of their new examination in ear-training and sight-singing for individual candidates in schools and local centres, and we congratulate those responsible for the work of planning the general scheme and on the very practical nature of the tests they have devised. It is obvious that much of the ground covered by such an examination is included already in existing vocal and instrumental examinations, but there has been a need for a general testing of candidates in the more elemental essentials of musical appreciation and musical values. Such a test is here supplied, and in a form that teachers especially should welcome, as it provides a graduated code on which to base their instruction in sight-singing, and one that should be equally valuable either for class or individual tuition. Shortly summarised, the following tests are provided, viz.: *Elementary*.—Sight-singing from staff or modulator, for the recognition of intervals. Monotone time tests, for the recognition of rhythmic accent. Ability to name two notes of a major scale successively sounded on the piano, the scale being first named and its chord struck by the examiner. *Higher*.—The foregoing tests in more advanced forms, and recognition of cadences and triads played by the examiner, a further test in naming chords also played, and the harmonisation at the keyboard of a given melody. As a final test the candidate is asked to listen to a short piece played by the examiner, and then to name its principal features of interest, such as "sequences, points of imitation, and modulations." So shall the new generation of musical critics emerge from their earlier tribulations.

THE importance of nature-study as a school subject, and the variety of ways in which the study is treated in London elementary schools, are referred to in a report on

school gardens considered by the L.C.C. Education Committee at a recent meeting. In the schools maintained by the Council nature-study is taught in a variety of ways, amongst which may be mentioned: (i) the study of growing plants in the class-room; (ii) the study of specimens supplied to a limited number of schools through the medium of the Council's botany officials; (iii) the "mutual aid" scheme, by which a few schools obtain specimens from provincial schools in exchange for picture postcards, &c.; (iv) the supply, through the parks department, of seeds or cuttings to children for cultivation in their own gardens or in flower pots; (v) the scheme of combined school gardens at Smith Street, Kennington, and High Street, Wandsworth; (vi) attendance of classes at the Stepney Borough Museum and at the botanical gardens in three of the Council's parks; (vii) nature-study excursions; and (viii) school gardens.

THE London County Council has recently issued in pamphlet form schemes of instruction in first aid, home nursing, health, and the care of infants (P. S. King: 2d.; post free, 3d.). Under each head a detailed syllabus of the lectures (for the ordinary course for pupils and for teachers) is given, as well as a full summary of the lecturer's notes and a list of such apparatus as may be required for carrying out illustrative experiments and demonstrations. A schedule of infectious diseases, showing approximately the periods of isolation necessary during illness and of quarantine after exposure to infection, is given, but it is not stated that the latter cannot be relied upon unless disinfection of both person and clothing has been carried out at the beginning of the quarantine period. The period of isolation required after "German measles" is stated as three weeks; but it is now recognised that in all simple cases of this malady isolation of the patient for nine to ten days from the date of appearance of the rash is ample. In the table dealing with the use of cow's milk for infant feeding, directions are given for gradually increasing the proportion of milk in relation to the amount of added water in accordance with the child's advancing age up to nine months. But a nursing mother's milk does not alter in quality (or "become stronger," as the popular phrase goes) as her baby grows, although it increases in quantity, and the custom of progressively increasing the proportion of casein in the food of bottle-fed infants up to nearly three times the amount normally present in mother's milk is unphysiological; it is also, as might be expected, responsible for not a little of the disturbed digestion and the habit of constipation too commonly met with in such circumstances.

"FURTHER Papers relating to the Registration of Teachers and the proposed Registration Council" have been issued as a Parliamentary Paper (Cd. 5726). The most important section of the paper is a report by Sir Robert Morant upon the three conferences held recently at the Board of Education, and a scheme for the establishment of a Teachers' Council. We hope to deal fully with these proposals in our next issue. There seems to be a hopeful prospect that the difficulties which have been experienced will be overcome, and that the long-desired council will become established. The idea of the proposed council is to bring about the unification of the teaching profession. It is obvious, the report says, that on the council there must be a university group just as much as an elementary group and a secondary group. It is further proposed that the fourth group shall represent technological and specialist teachers. Based on the fact that there are eleven universities in England and Wales, and that each of these must have one representative, it is

proposed that each group shall include eleven representatives, and that the council shall consist of forty-four members and a chairman to be chosen by the council from outside its numbers.

THE Society for the International Exchange of Children again directs our attention to the fact that it is prepared to give every assistance to parents anxious to arrange for the exchange, on mutual terms, of their boys or girls for French children of similar rank during the holidays. Inquiries should be addressed to the general secretary, Société d'Échange International des Enfants, Boulevard Magenta, 36, Paris. The society is recognised both by the French Government and the Alliance Française.

THE current number of *Science Progress* is one of exceptional interest to teachers, and most of the articles will well repay perusal. Possibly the most interesting essay is that on bread—the third article in the Ethics of Food Series. This is a thoroughly scientific statement of a vexed question written from the broadest point of view, and it clearly brings out the facts as to the composition of bread, its value as a food, and its place in our diet. So much has been written during the recent agitation on this subject, particularly by those least qualified to judge, that it is of the greatest value to have the whole question dealt with from an impartial and purely scientific point of view, and it is to be regretted that this article did not appear earlier. The “standard bread” boom has proved as short-lived as its predecessors, but it is still important that teachers should not be misled by sensational statements referring to it.

#### SCOTTISH.

A CONGRESS on Secondary Education, followed by a series of sectional meetings on classics, modern languages, science, and English, was held in Glasgow University this year. The congress was promoted by the Secondary Education Association of Scotland, with the co-operation of other societies interested in the work of higher education. Mr. Leander M. Fyfe, rector, Queen's Park School, presided over a large and representative audience. In his opening address Mr. Fyfe said that the object of the congress was to bring together the different bodies interested in secondary education for the purpose of discussing questions of general and special interest. The promoters had also this further object in view, viz., to prepare the way for some form of federation whereby all the different sections working the field of higher education might be united in one great body. The power of such an association in influencing public opinion and in urging necessary reforms would be infinitely greater than under existing conditions.

PROF. JONES, who was the principal speaker at the joint meeting, said that the characteristic attitude of these times towards the teacher was critical, regulatory, and mandatory. The “old dominie” sat as chief in his school, and dwelt as king in his army. But now “the teacher stretcheth forth his hands, and another girds him.” He was much more inspected and ruled than any other professional man. As a consequence, he was beginning to lose something of his trust in himself and of his pride in his profession. The schoolmaster was suffering the penalties of the greatly increased interest in education which marked the age, and for such a cause he must be prepared to bear with them as best he could. Discussing the aims of education, he said he assumed that whatever else education ought to be, it ought to be a preparation for life. This was taken by many worthy

people to be equivalent to a preparation for livelihood. But the two differed *toto coelo*. The education which was a preparation for life was that which was a preparation to learn from life. They should send out pupils from their schools not polished and finished, but just genuinely hungry, and possessed of an insatiable curiosity.

At a meeting of the English section of the congress, Dr. Boyd, lecturer on education, Glasgow University, read a paper on “Children's Vocabularies.” He began by referring to the exceedingly meagre knowledge possessed by the English teacher concerning the extent and character of the working vocabulary of his pupils. The unexpected ignorance, as shown by inquiry, of the meaning of the most ordinary words on the part of the average boy or girl emphasised the need for a systematic effort being made by the teacher to extend and improve the vocabularies of his pupils. For this purpose he did not approve of the direct method suggested by certain French educational theorists who advocated the daily teaching of words as words. The only way to make words a permanent and intelligent possession was to deal with them as they occurred in the daily routine of the class lesson.

A CIRCULAR has been sent by the Education Department to all the county and burgh committees intimating that there is likely to be a serious shrinkage this year in the Education (Scotland) Fund. It is expected and hoped that this shrinkage will be only temporary, but meanwhile the committees have been advised to cut down their bursary schemes by half, and to refrain from giving grants in aid of capital expenditure. This intimation has come as “a bolt from the blue” upon all concerned. No one anticipated even the possibility of the enormous shrinkage (which is said to amount to £80,000), and unless measures are taken to make good the deficit, the whole secondary education system will become paralysed. The Department, of course, is in no way to blame for the reduction in the fund. It is said to be due to the decrease in the excise duty on whisky, and apparently the only way to give stability to the fund is for every citizen to double or treble his yearly consumption of that beverage. The hope expressed by the Department, that the shrinkage is temporary, points in the same direction, though it seems a strange doctrine to come from an education authority!

THE Department, however, may fairly be held responsible for launching ambitious schemes on insufficient credit. To cut down the bursaries is an easy way out, but not a creditable one. The bursary system is the sheet anchor of secondary education in rural districts, and if taken away or materially reduced, higher education disappears for the great majority of the pupils. What becomes, then, of the much vaunted “equality of opportunity” that the Department has claimed for the existing system of education? The cutting down of the bursaries is little short of a betrayal of the interests of rural children. At all costs such a reduction must be opposed. Doubtless the Department recognises this aspect of the case, and only intends the proposal as a precautionary measure. It is much to be desired that advantage should be taken of the present crisis to place the education fund on a permanent basis and to dissociate it entirely from the whisky taint that has too long marked and marred it.

A MEETING to consider the formation of a Scottish Historical Association was held in the history class-room of Edinburgh University. Prof. Lodge, who presided over a large audience, said that it was of great importance that they should have an association which would do for the study and teaching of history what was being done



for other subjects by their respective associations. There was already an Historical Association doing extremely valuable work in England, and some of their friends wondered why they did not accept it instead of organising a new body. But the problems in Scottish schools differed widely from those in English schools, and he was satisfied better work could be done by an independent association. In the course of the discussion it was suggested that the name "Scottish Historical Association" would be misleading, as it was not restricted to the consideration of Scottish history, but to the whole field of history. Eventually, on the motion of Prof. Medley, it was agreed to form "The Historical Association of Scotland." The addition of another association to the already formidable list of such bodies is to be regretted, but at the same time it must be accepted as inevitable. In the tremendous hustle for position among the secondary-school subjects, no subject seems to get justice unless it is watched over by an association, taught by a specialist teacher, and examined by a specialist inspector.

THE issue of the Continuation Class Code for 1911 confirms the general expectation that changes on that of last year would be neither numerous nor important. Some minor alterations have been made in the interests of rural districts. Increased grants are to be paid for small rural classes. This will be welcomed by School Boards who have been anxious to make provision for the instruction of the youth in their districts, but have been barred from taking action by the prohibitive cost of running such classes. The attendance of pupil teachers at continuation classes has hitherto not been recognised for grant-earning purposes, but this restriction is now removed. The minimum period for the duration of a lesson in practical work was set down in former codes as one hour for Division III. classes and one and a half for Division II. classes. In future, the minimum duration is to be one and a half hours for both divisions.

At a meeting of Glasgow University Council, it was agreed to recommend that the university courts should be asked to form an advisory committee consisting of members of the University, the Athenæum, Commercial College, and other bodies interested in commercial education. The duty of this committee would be to consider and make recommendations regarding the best lines of university study to be followed by students looking forward to a commercial career, the kind and extent of practical experience that might be acquired between university sessions, and the new classes for which provisions should be made or the modifications that might usefully be effected in existing classes.

#### IRISH.

THE agitation which has been carried on so long for an increase in the Treasury grants for secondary education in Ireland has at last met with some success. In the debate in the House of Commons on Irish education, Mr. Birrell said he was glad to be able to make the statement that the Chancellor of the Exchequer was quite ready this year to set apart a sum of money for the benefit of secondary education in Ireland. He hoped that this grant would enable the Board of Intermediate Education to draw up a scheme under which boys would be able to proceed from the primary to the secondary schools, and afterwards to the universities. If the sum was more than was needed for this purpose, it was proposed to raise the status of the secondary schools in Ireland, which, he thought, could only be done by raising the status and salaries of the teachers in these schools. This statement is a great con-

cession to the views of secondary-school teachers, but it leads to two queries. First, the amount of money was not stated, and, secondly, it puts the raising of the status of the teachers after the provision of scholarships. These two difficulties are partly removed by the informal announcement that the sum to be granted this year is £30,000, which is all the Chancellor can afford at present, but is admitted not to be a full satisfaction nor to prejudice a further demand next year; and also by the informal statement that of this sum £6,000 will go to scholarships and £24,000 for the schools and teachers.

In the same speech Mr. Birrell also made promises in connection with primary education. The Treasury had agreed to lower the attendance for single-assistant schools from fifty to forty, and the Chancellor of the Exchequer had agreed to provide an additional £108,670 for building grants in connection with national schools, as well as to pay for half the expenses of heating and cleansing schools up to a limit of £21,000. He also hoped next year that teachers would be paid monthly instead of quarterly.

THE Intermediate Rules and Programme for 1912 have not appeared at the time of writing, but are expected almost immediately. It appears, however, from a circular issued by the Department, that there are again serious changes in the course for geography. A course in physical and commercial geography is being added by the Department with a special third and fourth year syllabus, and will form one of the subjects in experimental science at the Intermediate Examinations in 1912. No doubt schools will appreciate receiving extra payment for the teaching of geography, but in the absence of the new Intermediate rules it is impossible to say whether they will be likely to avail themselves of it. But there seem two objections to the proposal. In the first place, the Department will only recognise as teachers those who are already recognised by them as teachers of experimental science. In many, if not most, schools the teachers of geography have not been the teachers of science, and unless the present teachers of geography can under reasonable conditions be recognised by the Department, the result is likely to be less, not more, teaching of geography (unless, as said above, the Intermediate Rules make other provision for teaching it). In the second place, the syllabus for a middle-grade boy or girl includes a good deal that belongs to much more elementary stages, and seems to contemplate a commencement of geography at this stage, whereas geography is a subject the elements of which (including the geography of Ireland) belong to a quite early stage in the school career.

THE long-awaited King's letter for the modification of the charter of Trinity College, Dublin, has at last appeared. The changes are far-reaching. First, the governing board is reformed. Hitherto it has consisted of the Provost and seven senior fellows. For the future it will consist of these and four new members, two of whom will be junior fellows and two will be professors. The University council is also enlarged. It has up to the present consisted of the Provost and sixteen members of the Senate, elected in groups of four by the senior fellows, the junior fellows, the professors, and the Senate. The new council will consist of the Provost, senior lecturer, registrar, and sixteen members of the Senate, of whom the board will elect two, the junior fellows and professors ten, and the Senate four. Further, the system of election to fellowships by examination alone is changed. The board may select external examiners for fellowships and scholarships, and is not obliged to elect one fellow every year or to hold an examination for fellowship every year. It may

at any time elect a professor of the University to a fellowship, and it may further elect persons of distinction in science or literature as honorary fellows of the college. The King's letter also settles a long-outstanding dispute between the college and the Church of Ireland by a reform of the governing body of the Divinity School.

THE meeting of the Irish Technical Instruction Conference was this year held in Manchester, under the presidency of Dr. Windle, president of University College, Cork. The conference urged the need for more money for suitable buildings for technical instruction, and passed a resolution in favour of a Board of Commercial Education for Ireland. In addition to the address by the president, papers were read by Father Dowling on "A Survey of English Education"; by F. C. Forth, of Belfast, on "Courses of Study in Evening Schools"; by G. F. Fleming, of Wicklow, on "A School Garden at Work"; by G. Fletcher, assistant secretary for technical instruction to the Department, on "A Decade of Technical Instruction in Ireland"; by Canon Cummins, of Roscommon, on "Suggested Improvements in Agricultural Instruction in Ireland"; by A. Williamson, of Rathmines, on "Day Schools of Commerce"; by J. Corneston on "Co-ordination—an Irish Board of Commercial Education"; and by T. J. Hayes, of Blackrock, on "Technical Education in Relation to the Industries of the Country."

THE Belfast University Commission announces changes in the conditions on which the Queen's University may grant the degrees of Master of Arts and Bachelor of Laws. The M.A. degree may be conferred after an examination as an alternative to the other conditions, which are: (a) submission of a thesis, or (b) as a recognition of independent research. The LL.B. degree, instead of being a post-graduate degree conferred after two years' study, may be conferred either (a) as a primary degree after an approved course of study extending over three years, or (b) as a post-graduate degree after an approved course of study extending over one year.

THE Senate of the Queen's University, Belfast, received in June a deputation, which presented the following resolution: "That the present status of Irish in the Queen's University, Belfast, is unsatisfactory, and that it is desirable to have the lectureship of Celtic raised to the dignity of a chair." The deputation stated that every other Irish university had a chair in Celtic except that in Belfast.

ON the motion of Sir Samuel Dill, the Senate passed the following resolution: "That the Senate have learnt with satisfaction that efforts are being made by various public bodies to secure an improvement in the status and pecuniary position of assistant teachers in Irish secondary schools, and they express the confident hope that the Government in their financial arrangements will give favourable consideration to the urgent claim of a body of teachers, whose present position is discreditable to the country and injurious to the cause of education; and that copies of this resolution be sent to the Chief Secretary and the Chancellor of the Exchequer."

#### WELSH.

AN institute and library has been opened at Glyn Ceiriog, near Chirk, to commemorate the Welsh poet Ceiriog and two other well-known Welsh writers, Cynddelw and Huw Morns. Mr. David Davies, M.P., at the opening ceremony, said there had been a great revival in Welsh

national sentiment expressing itself in the education movement, in literature and art, by the establishment of the National Library and Museum, in historical and antiquarian research by all sorts of societies, and in social life by the formation of great national societies and Cymmrodorion. Ceiriog was the poet who gave inspiration to the spirit behind all these movements.

MR. OWEN EDWARDS, the Chief Inspector of Schools for Wales, remarked at the above meeting that Ceiriog longed for a revival of the Welsh language and literature, and said that Ceiriog's writing had done much to make his countrymen devote themselves to the study of Welsh, and when his works were introduced into training colleges and the elementary schools they did much to invigorate and stimulate the teaching and learning of the language. Many gifts were sent to the new institute. The Welsh colony in Patagonia sent some handsome oak bookcases. The Goldsmiths' Company a portrait of Sir Hugh Myddelton. A bas-relief portrait of Mr. T. E. Ellis, M.P., executed by Miss Winifred Hartley, was presented, and an oil painting of Queen Alexandra. The Ceiriog memorial thus becomes a national Welsh institution.

A JOINT committee for the promotion of higher education among working people has been formed in Wales. This includes representatives of the University of Wales and of labour organisations. Already preliminary steps have been taken for the preparation of a report to contain a summary of the working of the movement in connection with other universities, an account of what is being done in Wales, and an estimate of what demand there is likely to be for further provision of facilities in the Principality, and suggestions as to the steps to be taken to meet the needs. It is expected that the report will be issued in time to be of effect in promoting the beginning of classes during next winter.

THE Anglesey Education Committee has passed a resolution urging that, in the interests of national education and of good municipal government, the contributions from the National Exchequer towards the cost of elementary education should be materially increased, and that without delay. It was stated that since the last Education Act came into force, there had been in the county of Anglesey an increase of expenditure of 248 per cent. This increase naturally means higher rates, and these higher rates fall more heavily on the thinly populated counties.

AT a gathering of the Llandudno Field Club, Prof. R. W. Phillips, of the University College of North Wales, Bangor, said that the popularising of Llandudno as a tourist centre had its inevitable effect upon the plant life of the Great Orme's Head, which formerly contained a remarkable range of rare species. A deplorable deterioration had occurred on this promontory as a hunting-ground for plants. He found that parts that used to be extremely rich in wild British orchids were now exceedingly poor. A little gathering of the rare plants taking place constantly year after year had more or less exterminated them. As all the guide-books for the last fifty years had contained lists of these plants with hints as to their likely habitations, nothing else could be expected, and though unfortunate it seemed inevitable.

THE Denbighshire Education Committee has approached the Anglesey and other county education committees to appoint representatives to act on a committee to draw up a preliminary report for the consideration of the various

authorities in North Wales with a view to the establishment of a school for the instruction of blind and deaf and dumb children. The Anglesey Education Committee, however, has decided not to do so on the ground that it would be cheaper to send children from the county to existing institutions for these kinds of pupils.

### MORE GEOGRAPHY TEXT-BOOKS.

(1) *General and Regional Geography*. By J. F. Unstead and E. G. R. Taylor. viii+516 pp.; illustrated. (Philip.) 6s.

(2) *The Nations of the Modern World*. By H. J. Mackinder. xvi+319 pp.; illustrated. (Philip.) 2s.

(3) *Beautiful England Colour Books*. Pictured by Ernest Haslehurst. *Norwich and the Broads*. By Walter Jerrold. 56 pp. *Cambridge*. By Noel Barwell. 64 pp. *The Heart of Wessex*. By Sidney Heath. 64 pp. *The Cornish Riviera*. By Sidney Heath. 64 pp. *Dickens Land*. By J. A. Nicklin. 64 pp. *The Peak District*. By R. Murray Gilchrist. 64 pp. (Blackie.) 2s. net each.

(4) *Beautiful Britain. Wessex*. By C. G. Harper. 64 pp. (Black.) 1s. 6d. net.

(5) *The British Empire in Pictures*. By H. Clive Barnard. 64 pp.; illustrations, 32 in colours. (Black.) 1s. 6d.

(6) *The Home of Man*. By W. C. Brown and P. H. Johnson. 342 pp.; illustrated. (Harrap.) 2s. 6d.

(7) *Preliminary Geographies. England and Wales*. By E. Young. viii+104 pp.; illustrated. (University Tutorial Press.) 1s.

(8) *Oxford Geographies. Australia*. By Griffith Taylor. 250 pp.; illustrated. 3s. 6d. *Ireland*. By O. J. R. Howarth. 224 pp.; illustrated. 2s. 6d. (Clarendon Press.)

(9) *Causal Geographies. Europe*. By H. J. Snape. vi+190 pp.; illustrated. (Blackie.) 2s.

(10) *The British Isles*. By H. J. Snape. 64 pp.; illustrated. (Black.) 1s. 6d.

(11) *A Systematic Geography of America*. By G. W. Webb. vi+108 pp.; illustrated. (Methuen.) 1s.

(12) *Elementary Regional Geography. Europe and the Mediterranean Region*. By J. B. Reynolds. 184 pp. (Black.) 1s. 4d.

(13) *Regional Geographies. Elementary Regional Geography for Senior Classes in Primary Schools*. 208 pp.; maps, &c. 1s. *British Isles*. 80 pp. 5d. *Europe*. 34 pp. 4d. *Greater Britain*. 80 pp. 5d. By F. Mort. (Oliver and Boyd.)

(14) *Commercial Geography of the British Isles*. By A. J. Herbertson. 151 pp. (Chambers.) 1s.

(15) *The Junior Scientific Geography. Physical Geography*. By E. W. Heaton. viii+152 pp. (Ralph, Holland.) 1s.

(16) *Cambridge County Geographies. Cumberland*. By J. S. Marr. xii+169 pp. *Fifeshire*. By E. S. Valentine. ix+187 pp. *Nottinghamshire*. By H. H. Swinnerton. xi+153 pp. *Ayrshire*. By J. Foster. ix+175 pp. *Lanarkshire*. By F. Mort. viii+168 pp. *Berkshire*. By H. W. Monckton. x+169 pp. (Cambridge University Press.) 1s. 6d. each.

(17) *Peeps at Many Lands. Russia*. By L. Edna Walter. 87 pp.; illustrated. (Black.) 1s. 6d. net.

(18) *Far and Near Series Geography Reader. Europe*. By L. Marsh. xviii+232 pp.; illustrated. (Pitman.) 1s. 8d. net.

(19) *Highroads of Geography. Book I*. 128 pp.; illus-

trated. 10d. *Book II*. 170 pp.; illustrated. 1s. (Nelson.)

(20) *Lands and their Stories. Scotland, Ireland, and Britain Overseas*. By A. J. Berry. 240 pp.; illustrated. (Blackie.) 1s. 6d.

(21) *All the World in Picture and Story*. By J. Riley. 98 pp.; illustrations. (Philip.) 1s.

(22) *Our Own District Series. Durham and Northumberland. Lancashire: Manchester and District, Liverpool and District. The West Riding of Yorkshire. Glamorgan-shire and Monmouthshire*. Each 96 pp. (E. Arnold.) 4d.

(23) *The World's Commercial Products*. By W. G. Freeman and S. E. Chandler. viii+32 pp.; illustrated. Part I. Complete in 12 parts. (Pitman.) 6d.

(24) *Exercises in Practical Geography. The British Isles*. London edition. By C. R. Dudley. London Supplement by J. A. White. 68 pp. (Philip.) 1s.

(25) *Guide to Geographical Books and Appliances*. Prepared by members of the Geographical Association. viii+207 pp. (Philip.) 5s.

(26) *Grieben's Guide Books. The Riviera*. 152 pp. 3s. *Winter Sports in Switzerland*. 104 pp. 3s. *The Dolomites*. 150 pp. 3s. (Williams and Norgate.)

(27) *Philip's Pictorial Pocket Atlas and Gazetteer of the World*. viii+95 pp. 1s. net.

(28) *Historical Atlas*. By W. and A. K. Johnston. Coloured maps. viii+32 pp.

THE teacher of geography who requires new text-books may well hesitate in view of the numbers of books which have recently been published: in March last we noted a large number, and again we have before us many books of later publication. "The Guide to Geographical Books and Appliances" (25), under the heading "Text-books," states that the text-book is no longer the chief means of instruction and that it may fulfil three purposes: first, as a summary of the principles of geography; secondly, as a treasury of facts and details; and, thirdly, as a source of illustrations of various kinds.

If we apply these dicta to the books before us, we find specimens of each type and others which belong to none of the types. One aspect of the treatment of geography in relation to its principles, which has received frequent treatment in the recent developments of the subject, has been the regional aspect, and in the work of two training college lecturers in geography—"General and Regional Geography" (1)—there is the most thorough application of these principles which we have yet seen. At the same time we welcome the fact that more than half the volume deals with the geography of the world as a whole, in order to provide a standard of comparison by which to estimate the relative importance of the regions discussed later in the volume. Naturally such a book is suitable for older students rather than for school-pupils.

For young pupils Mr. Mackinder's "Elementary Study in Geography," which is completed by the fourth volume now issued (2), presents the latest development of geography as a "culture-subject," as a subject intended to give the child "outlook." The plan of the book is geographical, but the bulk of the matter is historical. The child-reader will probably be able to realise the present political condition of the world both in relation to its historical past and in relation to the geographical factors which have determined that past, and with the help of an enthusiastic teacher will imagine a series of impressionist pictures. We have now the complete scheme which Mr. Mackinder has formulated, and in reviewing the four books the student of the theory of education may well ask himself whether these principles lead. If the books are for

elementary schools, what kind of mental training do they afford? Is the elementary-school pupil to be condemned to inaccurate and slipshod thinking by giving him as a thought-content but a series of impressions from word-pictures and illustrations? These books lead us seriously to doubt whether modern developments do not tend to produce a proletariat of unthinking people. There can be no doubt that the child is interested in the cinematographic displays of the picture theatre; he desires to see other pictures of the same kind; but there can be equally no doubt that such a child receives little benefit unless his interest leads him to penetrate deeper into the facts and to accumulate knowledge of a more serious kind. Mr. Mackinder's scheme improves on such picture shows by its connected argument, but the same element of impressionism is there also. The child desires more of the same kind of treatment, but we fear that he will disdain the effort which other forms of presenting geographical knowledge entail. The content of geography is essentially a matter of the present, and if the child is limited by time in its acquirement of knowledge and sane habits of thought, would it not be better to discard the past and treat the present as the matter of moment?

There can be little doubt that the regional treatment of the world as the home of man as it exists to-day necessitates a different emphasis upon the different countries of the world, and gives the child an outlook on the world of a different kind. Mr. Mackinder asks that the child should formulate a conception of the world in which the Mediterranean lands and the lands further east—the homelands of the earliest manifestations of civilised life—are very important regions, important because the march of civilisation has made these lands of value historically, not geographically: their value lies in the past, not in the present. Others ask that the child should conceive the world as the home of the Western European, whose motherlands and colonies are of supreme importance because of his industries and commerce. In this view the shore-lands of the North Atlantic Ocean are the region of highest importance, not because of what they have been so much as because of what they are. The world is to be examined through two different telescopes: which is the better? which will give the future citizen a stronger grasp of the realities of the life which he has to live, of the incessant activity of to-day? and will lead him better to look forward into the future and to foresee, be it ever so dimly, the lines along which development will occur? Into the realms of geography teaching Mr. Mackinder has forced the perennial conflict between the old and the new, between the classical and the modern, and the teacher is compelled to make his choice. Happy is he who has sufficient time at his disposal, and sufficient freedom in relation to the curriculum to provide for both elements, to make his pupils use both telescopes and to pass from a survey of the world as the home of man in the past to the survey of the world as the home of man to-day.

Other signs of the interest that lies in the consideration of pictures are not wanting: among the books which do not fit the three types premised above are the picture-books published by Messrs. Black and Blackie. We have before us six books in a series of "Beautiful England Colour Books" (3), one specimen of a series on "Beautiful Britain" (4), and the "British Empire in Pictures" (5). These are suitable for prizes or for the library.

Books of the second type are a treasury of facts and details, and as a rule manifest at the same time some ideas of principles either in their arrangement or selection of matter; rarely is the sole reason for the inclusion of a fact merely that of coincidence in place; most modern

books give some attempt at explanation, some attempt to answer the question "Why?" The British Isles, Part I. of the "Home of Man" Series (6), is noteworthy for its excellent photographs and maps, and for the rigid way in which the dominant idea of our islands as the home of man has been maintained. As in many other books, the treatment of quantitative geography is weak; the data given refer generally to one year only; and it may be suggested that not enough attention is paid to the question of the food supply of the man whose home the islands are. Mr. Young, in his "England and Wales" (7), makes the railway lines a main thread for his narrative, which is intended for younger pupils. It may be suggested that there is too little left for the pupil himself to do; definitions are given, maps are set to copy, and it almost seems as if the pupil is supposed to lack initiative. There is an interesting set of exercises on contour lines at the end of the book, which is a useful work for children who have to prepare for the preliminary locals.

Mr. Taylor, who is now with the Scott Expedition in Antarctica, has produced a very good study of "Australia" (8). The maps are clearly printed, and on the whole greatly illuminate the text. The correlation of climatic data with those of vegetation on the same map is impressive, and as an Australian the author writes very largely from first-hand knowledge. One point, however, is worthy of notice. The statistics are usually those for one year only, which is a defect, especially with regard to a commodity which varies so greatly as animals.

Mr. Howarth's "Ireland" (8) is issued to justify the statement that an island is the most convenient unit for detailed geographical study. It does not appear to us probable that in any school time will be found for so detailed a study of so comparatively unimportant a unit as Ireland; if such cases occur, then this book will provide a useful text.

Mr. Snape's "Europe" (9) is disappointing. With the best intentions—*vide* the preface—this book appears to fall short of the author's standard of achievement. Many of the maps, &c., appear so ideal as to be misleading; and the author might consider carefully the following point: what place have isolated facts, stated out of connection with their determining factors, in a "Causal Geography Regionally Treated"?

The question of the correct use of statistics is strikingly illustrated in Mr. Snape's collection of geographical data (10); for example, the agricultural statistics for Great Britain are tabulated for the single year 1909, and upon examination it is found that the figures for sheep in the counties vary sometimes as much as 10 per cent. from the average for the years 1906-8. The cattle distribution map, curiously enough, is for the year 1902, and gives a different result from the facts tabulated. The sheep distribution map is undated, and gives different results again. The summary map for "Agriculture in the British Isles" gives some curious results. For example, barley is marked as of importance in Fifeshire, Nairn, Elgin, and Banff, and not marked for Lincolnshire and East Anglia, where the average production per square mile of the counties is much greater. Potatoes are marked in the middle west of Ireland, when the greatest production is in the north-west of Ireland. Oats are marked in the lowlands of Scotland and in Caithness, when the best Scottish production per acre is in Aberdeenshire and Linlithgow, which is exceeded on the average both in north-east Ireland and in south-east Ireland. Possibly this map is based upon acreage. Acreage is given for crops in the tables, but surely proportionate production is more important.

There are fifty-six pictures which distinctly show the tendency towards a teaching of geography based upon land formation. Each picture has an appendix of questions, and some of these tend to develop a habit of guessing on the part of pupils, who could hardly provide a correct answer to the question, unless they lived in the district or had pursued extensive geographical studies in the field.

Mr. Webb's "America" (11) is the fourth book of a series of five. There are few maps, and the text is subdivided into two parts by printing in two different sizes of type. For his facts the author in some cases has depended upon other text-books, with a result that they are sometimes inadequate, or misleading. The States of South America, especially Argentina, do not always appear to have been treated sufficiently fully in regard to their importance. Miss Reynolds's "Europe" (12) continues the good features of her earlier volumes in the same series.

Mr. Mort's "Regional Geography for Senior Classes in Primary Schools" (13) contains a great deal of the matter of the same author's "Regional Geography for Secondary Schools," and the little paper-covered volumes reproduce a great deal of that part of the general volume which deals with Europe or the British Isles. Statistics are given in some cases, nearly always for one year only, and the reader is desired, not to learn numbers, but to remember the order in which the facts agree. In one case the order of facts would certainly have been different if the statistics had been taken as averages for a series of years.

Dr. Herbertson has issued a third and revised edition of his well-known text-book on the "Commercial Geography of the British Isles" (14). Mr. Heaton continues his series of text-books by a book on "Physical Geography" (15) with the features which are common to his earlier work. There is a large number of illustrative diagrams of the type which can be easily reproduced upon a blackboard. References are made to experiments which are usually made in connection with science. This book should be of great help to the examination candidate.

The "Cambridge County Geographies" (16) are also books of the second type, in that they rely upon a local patriotism for the reason why certain facts should be known. We have previously noted many excellent features of previous volumes of the series; the statement of the Gulf Stream as a factor in our climate is improved, but the statistical appendices still show the limitation to a single year. If quantitative work in geography is worth doing, it is worth while to make it as accurate as possible by giving averages rather than data for a single year. The treatment of the rivers of Nottinghamshire, and the correlation of the population and the water supply with the geology of the county; the development of the consideration of the scenery and natural features of Cumberland; the well-written description of the Clyde and its history; the specially good geographical description of the features of Fifeshire; and the relation which exists between plant life and geological structure in Berkshire, are striking features of the separate volumes which will add to the reputation of the series as a whole. It is noteworthy that boys take these volumes out of the school library to read without having their attention specially directed to them.

Many of the reading books are specimens of a combination of the third and second types of text-books. The children who have Miss Walter's "Russia" (17) either in the class-room or in the library will be the richer for having read so picturesque an account of life in that country. The reader on "Europe" (18) differs in style and contains many of the main facts. An interesting

feature is the description of a voyage over Europe in an airship. The Home District is well presented in the little readers (22); while a good, simple treatment of geography is begun in the "Highroads of Geography Series" (19). Mr. Berry's fourth volume (20) in the "Lands and their Stories Series" is also interesting.

Mr. Riley's simple little book, "All the World in Picture and Story" (21), should interest young children. "The British Isles" (24) contains a useful collection of practical exercises. Messrs. Pitman are reissuing in parts the well-known volume of the "World's Commercial Products" (23), which should be in every teacher's and pupil's library.

Dr. Mill's guide to geography books and appliances (25) has been republished, with additions and revisions, at the instance of the Geographical Association. All teachers who are interested in geography will find it an adequate guide to books, maps, and appliances, arranged in chapters with regard to different aspects of the subject, such as the geography of man, the geography of plants and animals, and with regard to the different areas, such as the British Empire and the continents; one chapter is devoted to general reference books, and another to text-books for school use. Each chapter contains a general criticism, which may be regarded as representing the best features to be looked for in connection with the appliances enumerated in the succeeding pages. We note the statement of opinion that photo relief maps are seldom satisfactory, and that orographical maps should be substituted for them. Relief maps are not therefore included in the list. It may be urged in this direction that a photo relief map or a relief model is of great advantage as a supplement to the orographical map. No map or picture or model or photograph by itself can give more than one aspect of the relation between upland, mountain, and lowland, and consequently the knowledge which is gained by consideration of every means of presentation of these relations must be more complete, and therefore more valuable, than if the presentation is confined to one medium of expression. It would perhaps have been better from the point of view of the practising teacher if some means had been suggested whereby photo relief maps, &c., could have been used to supplement and enlarge the notions obtained from the use of orographical maps. Many teachers are so unfortunately placed that they cannot have access to relief models, but most of them can use photo relief maps.

The three volumes in "Grieben's Guide Books" (26) maintain the special characteristics of the earlier volumes noted in March last, and Philip's "Pocket Atlas" (27) is a useful shillingsworth, and the "Historical Atlas" (28) will meet a want.

### SCHOOL GAMES.

(1) *Plays and Games, for Indoors and Outdoors.* By Belle Ragnar Parsons. Edited by Mrs. A. L. Sandford. xxxvii+215 pp. (Pitman.) 3s. 6d. net.

(2) *Graded Games for Schools.* By Marion B. Newton. xv+69 pp. (Pitman.) 1s. 6d. net.

(3) *Physical Exercises and Games for Infants and Juniors.* By J. Lewis. 56 pp. (Pitman.) 8d. net.

(4) *School Games and Recreational Exercises.* By J. Lewis. 62 pp. (Pitman.) 8d. net.

(5) *Captain Ball.* By Jessie H. Bancroft. 15 pp. (Macmillan.) 1d.

(6) *Better Food for Boys.* By Eustace Miles. xiv+81 pp. (Bell.) 1s. net.

MESSRS. PITMAN have issued a very attractive and exhaustive book of games (1) for very young children. It

is well illustrated with actual photographs, and gives a programme of games for the year, suggested by the seasons' activities. Children imitate actions of birds, animals, farm servants, &c. Other games are illustrative of industrial life, home life, &c., harvest, May Day, Christmas, and patriotic festivals. A key to the book is provided in the chapter "Illustrative Development of a Lesson." In "Graded Games" (2), by the same publishers, we have a capital book of games carefully arranged in four grades to suit different ages and capacities of children. The aim of the games is exercise, recreation, amusement, and instruction. They will be specially welcome to children as a relief from the "Model Course." Numerous musical settings, of a simple kind, add greatly to the value of this book, which is produced in Messrs. Pitman's best style.

"Physical Exercises" (3) and "School Games" (4) are compact little handbooks, the former much on the lines of the larger books already referred to, the latter dealing rather with games suitable for boys, and concisely treating more than a hundred of them. The illustrations in this last book are a valuable aid to the textual explanations. We strongly endorse the author's contention that games should not be played in class-rooms, that always, so far as possible, they should be played in the open air; when that is not possible, in a well-ventilated hall.

Miss Bancroft's pamphlet (5) is an extract from her larger work on "Games." It explains, with the assistance of some useful diagrams, three ways of playing Captain Ball, "one of the best and most popular games for both children and adults, boys and girls."

Without games, no work; and without food, no games. As the physical basis of both playing and working powers, it may not be out of place to refer here to food, and especially to the revised second edition of Mr. Eustace Miles's little book, "Better Food for Boys" (6). Mr. Miles has done useful service in directing attention, in season and out of season, to food values. As a front-rank athlete and student, his words command attention, especially as he is not fanatical in his recommendation of a non-flesh diet. His admissions regarding the values of some flesh foods are remarkably fair; and in this little book he pleads rather for a diet which tends to bodily vigour, moral purity, and mental alertness, whether including flesh or not, than for anything in the nature of a rigid vegetarianism. His chief insistence is on a sufficiency of proteid. Housemasters will certainly find valuable suggestions here; and Mr. Miles is prepared to meet them half-way, believing as he does that partial reform is better than none.

### LITERATURE SERIES.

Macaulay's *Clive*. Edited by V. A. Smith. 116 pp. Byron's *Childe Harold*, I., II. Edited by H. F. Tozer. Third edition. 255 pp. Milton's *Earlier Poems*. Edited by O. Elton. 150 pp. Tennyson's *Princess*. Edited by H. Allopp. 116 pp. 2s. each.

Macaulay's *Addison*. Edited by G. E. Hadow. 96 pp. 1s. 6d.

Kinglake's *Eothen*. Edited by I. Hogarth and V. Collins. 304 pp. 2s. 6d. (Clarendon Press.)

ALL these books from the Clarendon Press are decent in dark blue: Dr. Tozer's Byron is well known, with its excellent preface and notes; the Milton is a number of booklets bound together, with notes and glossaries. The "Princess" is carefully and, we say it in praise, singularly edited; but surely in the preface Tennyson's approval of

well-tried schemes is rather underrated; the poem cuts two ways. Is there any authority for calling the divisions cantos? and is not "goat's-beard," on p. 37, the name of a plant (*Tragopogon pratense*) flowering in May? The note will tend to produce the inextinguishable laughter referred to on the same page. Macaulay's "Addison" has its notes on the page and not at the end, an excellent but rarely followed arrangement; can no one give us a facsimile (size and all) of a *Spectator* sheet? The editor is lukewarm, and rightly so, about Macaulay's presentation of Addison; Macaulay does not draw us to his subject: is it that he and Addison were somewhat alike? Kinglake's "Eothen" is a problem: any number of editions appear, but they are scarcely worthy of the book. One of the original illustrations is given us, but only one, and it is very poor; but the book is all that school work requires, and it is something to get Mr. Hogarth, himself so brilliant a traveller, to write a preface to the immortal book. At least "Eothen" appears to be immortal: why cannot we have even a facsimile reprint of the first edition of the dear old brown-paged volume?

The continuation of another series (Blackie's English Texts, 6d. each) gives us more of Plutarch, Gatty's "Parables," Milton's "Areopagitica," essays from the *Spectator*, and Boswell's "Life of Johnson." This series has frequently been commented on, and always in terms of praise. As Dr. Rouse is mainly answerable for this, so Mr. Fowler is answerable for the English Literature in Secondary Schools, a series published by Messrs. Macmillan (1s. each volume). To this series are now added Gibbon (select narratives), Plutarch's "Julius Caesar" (North's translation), and two very interesting volumes, Parkman's "Pioneers of France in the New World" and Stow's "Survey of London." The reprinting of such books as these will go far to rescue geography from being considered dull, especially if Mr. H. D. George's books be digested wherein geography is viewed as the basis of history. A few years ago no one could buy Stow or Parkman for many shillings.

### RECENT SCHOOL BOOKS AND APPARATUS.

#### Modern Languages.

*French Composition*. By F. Guillotel and H. Proix. xii+145+119 pp. (Ralph, Holland.) 2s. 6d. net.—This is a book on original lines, and thus presents a refreshing novelty among the many books on French composition. Rules are clearly stated and examples are well chosen. The exercises are very useful. Teachers will derive many helpful hints from a perusal of this book.

*Dictionary of French and English, English and French*. By J. Bellows. Revised and enlarged by W. Bellows. 690 pp. (Longmans.) 5s. net.—This enlarged edition of the well-known pocket dictionary is an excellent piece of work, ingenious in arrangement, and carefully executed. The French-English and English-French parts are not separate, but on the same page. Useful tables (verbs, grammar rules, money, thermometer, &c.) are prefixed. Our only regret is that the pronunciation is not designated in a more satisfactory fashion. Thus *bisaicul* is transliterated *bee-zah-yull*, and *blame* as *blême*, *blear-eyed* as *blire-aide*.

*English Selections for French Prose Composition*. By B. B. Dickinson. vii+106 pp. (Dent.) 1s.—Mr. Dickinson, of Rugby, has selected one hundred passages of English prose; some of them have been specially written.

He hopes to issue later a further selection, of a wider range of difficulty; also a partial vocabulary and a set of suggestions and cautions for each piece. If, as may safely be anticipated, this were carefully done, it would much enhance the usefulness of this little book.

*La Petite Institutrice, and other French Dialogues.* By Gertrude M. Ironside. 28 pp. (Black.) 6d.—The six little dialogues are bright and well suited for school use, especially for girls; they were primarily written for a class of girls of twelve years of age. A few misprints should be corrected in the next edition. Most of these are mistakes in punctuation; beside these, we have noted: *plauche* (p. 13, l. 25), *côte* for *côté* (p. 20), *grand* for *grande* (p. 22, l. 55), *diné* (p. 27, l. 18), *crème* (p. 27, l. 25).

*Steps to the Writing of French Free Composition.* By Miss M. L. Hart and Hardress O'Grady. x+54 pp. (Blackie.) 9d.—This is a distinctly valuable book, which will prove of good service to the competent teacher. Every page shows the work of experienced and sympathetic hands. Occasionally the text is perhaps a little difficult and the range of thought too wide; but, speaking generally, we have only praise for this little book.

#### Classics.

*Simplified Ovid.* A First Latin Reader, with notes, exercises, and vocabulary. By W. F. Witton. vi+120 pp. (Arnold.) 1s. 6d.—Mr. Witton's book is for the lone student, not for the class-room. We have here all the steps by which a teacher can lead his pupils up to the subject put down in black and white. Each lesson is in four parts: A, a simplified version, the substance being given in simple sentences and in prose order; B, English sentences to be turned into Latin; C, Ovid's text; D, Latin questions to be answered in Latin. Notes at the foot of the page (or later, at the end) explain everything else. For the class, with a competent teacher, and granting Mr. Witton's method of approach, B and C alone are wanted; the teacher will ask such questions as will educe A, and will give the notes when wanted. How topsy-turvy the editor's notions are will be clear from the last sentence of his introduction: "The golden rule . . . is, first to translate what the poet says, then to think out what he means by it." This is the amazing result of our English school-system: first translate, then think of the meaning! Beside such a pronouncement it seems to be trivial to point out that if two short syllables are equal to one long (p. 3), there is no reason why ~ or ~ should not stand for ~.

*Vergil: Georgics.* Edited by A. W. Young and F. G. Plaistowe. 188 pp. (Clive.) 4s. 6d.—The introduction deals with the author, his works, this work and its sources, style, date, and matter: it includes a clear and useful statement of some facts in astronomy which ought to be known, but in these Cockney days are not known. The metre is explained, with examples: and one typical remark may be quoted. "Georgics" iv. 55 is given as an instance of fourth-part caesura, and the words are added: "Observe *nesciō*." But the reason is not given (i.e., that this quantity is proper with the compound pronoun *nescio quis*, not otherwise), and nothing is said in the note on the passage. The notes contain an English summary (a thing educationally bad), and full explanations of allusions and difficulties: to these are added many of those elementary points which ought to be left to the pupil, abl. of place whence and comparison, and translations of far too many phrases. We are glad to add that some of the notes are really good (as on i. 56, though another explanation is possible, iii. 11, iv. 165). But this cannot

atone for the fault of too-much, nor for cram-notes like "a metaphor very common with Pindar" (iv. 116). What's Pindar to them, or they to Pindar?

*Cicero's Letters.* Selected and edited by Ernst Riess. lx+396 pp. (New York: The Macmillan Company.) 3s. 6d.—This book, meant for "Freshman classes" in America, has an introduction full of useful matter (but why discuss the history of letter-writing in five pages?). Good sketches are given of the correspondents, and the chief events of Cicero's life are set forth in a table. The *sermo cottidianus* is clearly summarised in another section. The notes are not excessively long, but aim at removing all real difficulties; sometimes a little scamped, indeed, for the extraordinary use of *ἀνάθηνα* (p. 270) needs explaining. The reader would never guess from this note that it was odd, or that it is, after all, due to conjecture. Much the same criticism may be passed on the notes about *fabam mimum* and the sign  $\infty$  (p. 277), *tripudia* (p. 355), and others. We should expect in such a book more appeal to the intelligence. The references to Cicero's text should be given at the head of each letter. For the substance of the letters, we can only say that it would be impossible to make a dull book out of Cicero's letters; these touch on history also at many points.

*The Histories of Tacitus, I. and II.* By F. G. Moore. xxviii+250 pp. (New York: The Macmillan Company.) 3s.—This is an American book; but it is better suited for use in England than most American books. The introduction on Tacitus's style, and his place in letters, is well done. The notes are full, but each is brief, and they give what we want to know for the most part; some, however, are not useful (e.g., I. 86 on *humana*, II. 11 e *praetorio*, II. 33 *postquam placitum*). The print is clear, but the margins mean and the whole book stodgy.

#### English.

*English Sounds. A Book for English Boys and Girls.* By Walter Rippmann. 60 pp. (Dent.) 1s.—Prof. Rippmann, in the preface to this little book, says: "It is time that the spoken language should be restored to honour; . . . but progress is hampered because there is no simple book on English sounds that can be placed in the hands of a boy or girl." With the first part of this quotation we agree; with the second we disagree. Let us use phonetics by all means to teach English—indeed, there is no other desirable way—but let us no more give the children a text-book of phonetics than we give them a text-book, as opposed to an example-book, for arithmetic. If we are not careful we shall have written examinations on phonetics at the very moment when we are escaping them in formal grammar. The book, however, will find its proper use among many teachers, who will be glad to have a simple introduction to the subject confined to English sounds, and to have provided for them numerous examples skilfully arranged to practise the different sounds.

*A Practical Training in English.* By H. A. Kellow. 272 pp. (Harrap.) 2s. 6d.—This book is one of those welcome signs that the teaching of English is at last being systematised and treated in a practical way. It may be said to belong to the class of books produced by the Board's circular. At the risk of appearing unduly timid, we would utter a timely warning: let us not rush from entire absence of method to the other extreme of over-formality. In the book before us we are arrested by a hundred illustrations of this danger. We confine ourselves to one instance—the study of "Lucy Gray." In the "questions and exercises" on the poem, the following—



among many other—questions occur: "What was the fate of Lucy Gray?" "Did she deserve this fate?" "Did her parents deserve to lose Lucy, their only child?" "Can any moral be drawn from the story?" But let us not be misunderstood; this book is an excellent contribution to method. It consists largely of typical and familiar forms of verse, followed by questions and exercises upon them, with studies—not necessarily related to the poems—in composition, prosody, word-formation, &c. There are also interesting chapters on the history of the language.

**English Composition and Précis-writing.** By R. W. Holland. 152 pp. (Longmans.) 2s. 6d.—Mr. Holland is a lecturer at the Manchester Municipal Evening School of Commerce, and his book is designed primarily for the use of students in day and evening commercial schools. Its simple plan and abundant examples make it extremely suitable for this purpose. The last quarter of the book is given over to examination papers in *précis*, set by such bodies as the Society of Arts and the Civil Service Commission.

**Précis Writing.** By E. A. Belcher. 168 pp. (E. Arnold.) 2s. 6d.—This is the second book recently published to help Army candidates to write *précis*. Except for four pages of introduction, the whole contents are material for the students' skill. It is interesting that Mr. Belcher follows Mr. Vaughan, of Wellington, in speaking highly of *précis* writing as a mental training; at any rate, we are sure that for most Army candidates it is a highly desirable form of exercise.

#### Mathematics.

**Elementary School Mensuration.** By C. W. Crook. viii+124 pp. (Pitman.) 1s. net.—Mensuration is a somewhat heterogeneous subject with ill-defined and fluctuating boundaries. In the work before us Mr. Crook gives not only the rules for determining the lengths, areas, and volumes of the simpler plane and solid figures, but in addition so much of the elements of trigonometry as is needed in establishing the rules. There is also a little plane and solid geometry, but in dealing with the volumes of pyramids, cones, and spheres the rules are stated without proof. In the chapters on trigonometry we do not like to see such expressions as  $\sin^2 + \cos^2 = 1$ , the symbol for the angle being omitted. We are rather surprised that no proof of the formula for the area of a triangle in terms of the sides is given. It can be obtained quite easily without the use of trigonometry.

**Elements of Plane and Spherical Trigonometry.** By D. A. Rothrock. xii+140 pp. With *Logarithmic, Trigonometric, and other Tables*. xiv+99 pp. (New York: The Macmillan Company.) 6s. net.—This is a useful introduction to trigonometry suitable for students to whom the practical applications of the subject are of greater importance than the purely theoretical developments. An excellent set of five-figure and four-figure tables is included.

#### Science and Technology.

**Chemistry for Matriculation.** By G. H. Bailey and H. W. Bausor. viii+548 pp. (Clive.) 5s. 6d.—In view of the new London Matriculation syllabus in chemistry, a complete revision has been made of a previously published work by Dr. Bailey; indeed, so many changes have been made, both as regards contents and methods of treatment, that this is practically a new book. The authors have accepted the view that for work of this standard "a judicious combination of the heuristic and didactic methods of teaching should be used." Accordingly, Section I. contains an "introductory course of the approved type"

based on experiments by which "the fundamental principles of the science are established in their proper sequence." Apparently this is accomplished in nine chapters, the first six of which are experimental in nature (dealing with the properties of air, water and chalk, and with the laws of constant and multiple proportions). Indeed, after these introductory chapters, in which he learns to recognise four gases, the beginner is introduced to the fundamental laws of chemistry; among them he learns Gay Lussac's law of volumes, when he has not yet seen even the names of the gases of which he reads. Without criticising this method of introduction, the writer ventures to say that it is not heuristic; it is purely didactic. Furthermore, not a few teachers of the present day would prefer to postpone both generalisations and theories, even at the risk of temporary inconvenience, until a somewhat wider basis of fact has been obtained. After this introductory section the authors pass to a systematic treatment of the non-metallic and metallic elements, illustrated by numerous experiments, and conclude with a final section on chemical calculations. The book throughout is clearly written, and contains full descriptive details. To those teachers who do not object to the didactic method, it may be recommended as providing a complete introduction to the subject.

**A Manual of Elementary Practical Chemistry.** By P. W. OsCroft and R. P. Shea. viii+134 pp. (Rivingtons.) 2s.—The course of experimental work indicated in this small manual presents little that is novel. The wording is careful and precise, the experiments suggested well within the powers of the beginner; but the disclaimer which the authors make of leanings towards the "heuristic" method is surely unnecessary, since their directions provide the equation representing each reaction, and indicate most of what the student is expected to observe. Indeed, one cannot help feeling that the authors underestimate the powers of the average schoolboy. The course is well arranged, with the exception of the somewhat sudden jump from elementary experiments on water, chalk, combustion, and compounds of three elements—sulphur, nitrogen, and carbon—to a course of volumetric analysis, which includes the use of bichromate, permanganate, and silver nitrate solutions. This can only be possible if the student's theoretical knowledge is far in advance of his practical work. The volume concludes with brief directions for the analysis of a simple salt.

**Inorganic Chemistry for Advanced Students.** By Sir Henry Roscoe and Arthur Harden. Second edition. viii+476 pp. (Macmillan.) 4s. 6d.—The publication of a new edition has given an opportunity for a thorough revision of the text of this well-known manual. During the ten years which have passed since its first appearance, few changes of first-rate importance have occurred in chemical science. The discovery of the radio-active elements is recognised here by the introduction of a chapter dealing with the subject. Apart from the addition of an account of the simpler carbon compounds, other changes are such only as are necessary to bring the book up to date; in other respects, the book retains the form in which it has become familiar to all teachers of the subject.

**An Introduction to Chemical Theory.** By Alexander Scott. Second edition. viii+272 pp. (Black.) 5s. net.—Although this book was first published nearly twenty years ago, its main features have been left unchanged. That is to say, it still deals with the universally accepted theories of the science rather than with those less firmly established, while it is specially useful because it presents the facts on which these theories are based in a non-mathe-

mathematical manner and in greater detail than is common in books of its size. Those who wish to see how clearly physical chemistry may be explained without the aid of mathematical symbols and formulæ cannot do better than consult chapters vii. and ix., on dissociation and thermochemistry respectively. No student can read this book without having new lines of thought opened out to him; it is of great value for those who have already some grasp of the subject.

#### Miscellaneous

*The Girls' School Year Book (Public Schools)*, 1911. xxxv+603 pp. (The Year Book Press.) 2s. 6d. net.—For the first time this useful work appears as the official book of reference of the Association of Headmistresses, and the sixth issue, as this is, is the best which has appeared. In addition to the full particulars of 150 public schools for girls in all parts of England, the book deals exhaustively with the future careers of girls on leaving school. The volume may be recommended to schoolmistresses and parents alike.

*A Merry Heart and other Songs*. By H. Walford Davis. Vocal Parts (Old Notation and Tonic Sol-fa), 1s.; Vocal Parts with Pianoforte Accompaniment, 2s. 6d. (Sidney Riorden).—This collection forms an admirable complement to "The Twins' Tune Book," and is most suitable for the upper forms of schools and for colleges. The short poems, by various authors, are quaint and humorous in turn, and are instinct with the joy of life and the simplicity and beauty of nature. The music, by Dr. Walford Davis, is decidedly above the average of that usually written for schools, and adequately expresses the contrasted moods of the lyrics.

*The Twins' Tune Book*. By Arthur Somervell. 27 pp. (McDougall.) 2s. net.—This is not only an excellent collection of songs for use in the lower classes of schools, but, as the printing and general get-up are excellent, it would be most acceptable to these children as a gift or prize book. The poems are selections from those of R. L. Stevenson, and the melodies, by Dr. Somervell, are pleasingly tuneful and appropriate.

#### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

#### An Interesting Problem.

THE following problem is curious for a pitfall it offers to fairly good students:

"If six people sit in a ring, how many ways are there of arranging them so that a particular pair never sit together?"

Solution sometimes offered:

"If the seats are undistinguishable, as is usual in a ring, the number of ways is 5 when no restriction is imposed. Now if A and B, say, must not sit together, let us count the ways in which they do sit together. Reckoning them as one person, this makes 4, which we double, because they can sit as AB or BA. The required result is thus  $5 - 2 \cdot 4 = 72$ ."

The real result is 60; but the fallacy is difficult to elucidate. A good question to prepare the way to its

detection is this: "If 3 people enter a vacant row of 20 stalls in the theatre, in how many ways can they be seated, all 3 keeping together?" G. E. CRAWFORD.

Manor House, Clifton, Bristol.

#### Secondary Schools and the National Home-Reading Union.

MAY I through your columns direct the attention of English teachers in secondary schools to the help they can obtain from the National Home-Reading Union? Although primarily founded for the purpose of encouraging the reading of good literature by those who have just left school, or the study of special subjects by adults, the N.H.R.U. will be found to be of great assistance to teachers of English subjects in their ordinary work. For a merely nominal fee members receive lists of books suitable for study and of books of reference. They also receive the monthly magazines containing articles on the books under study, with questions for discussion, contributed by specialists, and in many cases the loan of portfolios of prints can be obtained.

As the courses comprise (a) introductory, (b) young people's, (c) general, and (d) special, it will be seen that the help of the N.H.R.U. can be utilised at every stage of the secondary-school course; the subjects studied include nature-study, literature, history, and geography.

The N.H.R.U., moreover, undertakes to find out for its members the best books to read on any subject in which they are interested.

Further particulars of the Union's work will be gladly supplied by the Secretary, 12, York Buildings, Adelphi, W.C.

J. W. PROUD.

Coopers' School, London, E.

#### The Date of Easter.

IF you want to find Easter (see THE SCHOOL WORLD, p. 227) or any date from the creation of Adam to the battle of Armageddon, get Mr. J. P. Wiles's "World's Calendar" (published by G. Philip and Son at the ridiculous sum of 2s.). It is printed on card, and this once bought you need never buy another, and never be infuriated by looking up next year's date in last year's calendar. It is the cleverest and most convenient thing of the kind ever invented. All Easter's horrors are gone for me.

W. H. D. ROUSE.

Perse School, Cambridge.

## The School World.

A Monthly Magazine of Educational Work and Progress.

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# The School World

A Monthly Magazine of Educational Work and Progress.

No. 152.

AUGUST, 1911.

SIXPENCE.

## THE TEACHERS' REGISTRATION COUNCIL.

By FRED CHARLES, B.A., Strand School.

YET another attempt is to be made to weld teachers together into a profession by placing their names on a Register of Teachers; but perhaps to say so much is to anticipate, or even to be over-sanguine. What has actually taken place is that Mr. Runciman, on June 14th, more than a year and a half after the meeting at the Clothworkers' Hall, directed that an order in Council be drafted to bring into being a council charged with the duty of forming a register. Among only a small number of those concerned does the history of registration during that year and a half appear to be well known, so it may with advantage be recalled. After the meeting at the Clothworkers' Hall, some twenty of the thirty-seven associations the representatives of which had unanimously passed the resolutions outlining the desire of the teaching profession sent memoranda to the Board of Education. One of these bodies, the Association of Teachers in Technical Institutions, passed at its meeting on June 18th, 1910, a resolution asserting that the representation allotted to it by the scheme before the Board was "totally inadequate." Thus the unanimity of the "thirty-seven" appeared to have broken down, and the apparent want of absolute unanimity was referred to by Mr. Runciman in replies to questions in the House, in July, 1910, in his speech on the education vote in that month, and, subsequently, in answer to further questions. In that same speech Mr. Runciman said that if he found that an agreement had been reached, he was "prepared to recommend the issue of an Order in Council. But I must be satisfied first of all that an agreement has been made." All the bodies concerned, and notably the Federal Council, then tried to show that there was substantial agreement between all branches of the teaching profession. The Association of Teachers in Technical Institutions showed that it was in favour of the early establishment of a Teachers' Registration Council, and that its effort to secure larger representation on a first council must not be considered a reason for believing that its members were desirous of postponing the establishment of such a council.

In March of this year were held the three con-

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ferences between the Permanent Secretary of the Board and the various sections of the teaching profession, described in the papers issued with the minute by the President of the Board. At the first, representatives of various bodies of teachers in secondary schools were present; at the second, to these were added teachers in elementary schools; and at the third were people representative of almost every branch of the profession. At these conferences the difficulties in the way of establishing a registration council, and, more especially, of establishing a register were discussed at some length. It was made quite clear that sub-registers, whether desired or not, were ruled out by the terms of the Education (Administrative Provisions) Act, which requires that "the register shall contain the names and addresses of all registered teachers in alphabetical order, in one column. . . ."

This practically determines the form of the register; it must be an alphabetical list, it must contain the addresses of the teachers registered, and, further, to be of any use, their qualifications (university and other); it must also include experience and show where it was gained.

Should one uniform minimum standard be exacted of every person admitted to the register, or could different minima be exacted in respect of different kinds of teachers? It was agreed that, while every "general practitioner" should have one common qualification, there must, of necessity, be a variety of qualifications for different groups of technical and specialist teachers; further, there should be no differentiation in the case of different kinds of applicants, that is, applicants for registration as teachers in particular kinds of schools. Those teachers already registered in column B. of the old register would be placed on the new register, and so the standard exacted from the "general practitioner" would probably be that for column B. of the old register; it was also felt that every teacher, whether general, technical, or specialist, should be able to show ability to speak correctly. All three conferences were unanimous in accepting this basis of qualification, and in leaving all details in regard to qualification to the registration council, when formed.

Practical or commercial considerations were not neglected; the size, the probable sale, and the printing of the register were taken into considera-

tion in connection with its utility. While all three conferences discussed the points already mentioned, the third dealt, further, with its composition, its finance, its duration, and the kind of body which was to succeed it at the end of three years. The two groups left indeterminate at the Clothworkers' Hall—the co-opted members and the Crown nominees—were considered; there was a more or less general agreement to the proposition that, if the Board of Education so preferred, no members of the council should be nominated by the Crown. The Act requires that the council should be "representative of the teaching profession." To be representative, the universities must send nominees, and the number of these universities' representatives appeared to offer some difficulty. This Sir Robert Morant, in his report to the president, overcomes by a slight modification of the scheme submitted at the Clothworkers' Hall. The indeterminate group is replaced by eleven university representatives, one from each of the universities in England and Wales, and the other three groups are accordingly increased from nine to eleven. In the first group, that of elementary teachers, an additional member is allocated to the National Union of Teachers, and another to the National Association of Head Teachers.

In the second group, the secondary-school teachers, a second representative is given to the Headmistresses' Association and the Froebel Society is included in this group. The third group consists of eleven members, representing those associations in the technological branch of the Clothworkers' Hall scheme, together with the Training College Association and the Teachers' Training Association. Such a Registration Council would be truly representative of the teaching profession, comprising, as it does, representatives of elementary, secondary, technical, specialist, and university teachers. The chairman, the forty-fifth member of the Council, is to be elected by the Council from outside their numbers, and would doubtless be a man of distinction, possessed of the characteristics requisite in an effective president of a body of this kind, whose deliberations would constantly be upon matters in which divergent interests and opposing points of view would frequently occur.

One of the alleged defects of the old register was that some of the teachers appeared upon it without having paid a registration fee. This invidious distinction is to be removed; each teacher registered is to pay a fee of one guinea. The only exceptions are to be those teachers who paid the fee to be on the old register. Their presence, however, is to cost the new Registration Council £9,000, the total sum expended by the former Council in its five years of existence. This does not appear to be generous treatment towards a body which is to take upon itself such an onerous duty as the drafting of a Teachers' Register, especially when it must be generally recognised that it can have no income until a most difficult part of its work, the decision with regard to qualifications, has been completed. The meeting at the Clothworkers' Hall passed a resolution asking for

the £12,000 paid by teachers for registration, and the Board will put this request to the Treasury. The only sources of income will be registration fees and, possibly, sales; but to obtain anything from the latter, the Register must be printed, and this will be such a costly matter that it might well cost more than the proceeds of sales. The income, then, as well as the cost depends on the number of teachers who register, and this, apparently, no one will venture to predict. The "Schoolmasters' Yearbook" may, perhaps, be something of a guide in these matters; rather less than one-half of it consists of an alphabetical list of names with addresses and qualifications and experience; but it contains no women and no teachers in schools other than secondary. There are more women than men teachers in secondary schools. These, with the university teachers, might form a volume or two. In addition, there are the elementary and technical and specialist teachers; numbers of them will doubtless be registered; thus, whether the register is printed or not seems to depend largely on the proportion of elementary teachers who register. One point with regard to the finances of the council is certain; and that is, that when once started with a cash balance, it has to be self-supporting.

The duration of the first Council is to be three years. The constitution of its successor is a difficulty noticed in the final paragraph of Sir Robert Morant's report. He says, "Probably, all things considered, and especially having regard to the number of matters which it may be hoped will have been discussed, and will thus have reached an advanced stage of solution towards the end of the first three years of the first Council's working, it will be desirable not to attempt at present to forecast what will then be the best composition of the Council; and it will, perhaps, be best, and is certainly likely to be quite safe, to leave this to be determined in the course of the year 1914, by the then Board of Education, after considering recommendations then made to it, for that purpose, by the Council, which would probably by that time, after three years of practical working, have arrived at considered views on the subject, based upon practical experience."

The Order in Council is to be drafted to bring into being a Registration Council on these lines, and to that Registration Council "will be assigned the duty of forming and keeping a register of such teachers as satisfy the conditions of registration established by the Council for the time being, and who apply to be registered."

The question naturally arises, what is to be the good of such a register? It may be argued by some that a heterogeneous mass of names, of men and women with no common standard of attainment, except that each has a qualification to teach something to somebody, of some standard, cannot be of much use to anyone. Yet the teachers are unanimous in asking for it.

It might be argued, also, the present plan is to begin at the wrong end, for it is proposed to begin by registering a set of men, some of whom have

no literary or educational qualifications, and others of whom have no professional qualifications, although their work is to educate, and is, therefore, of the utmost importance to the individual, to the community, and to the Empire; that it were far better to make the profession by giving to the efficient security of tenure, reasonable remuneration, and some prospect of advancement, and then to register the members of the profession. That, in short, material benefits should precede the formation of a register.

A mere alphabetical list will not be of any assistance to a Board of Governors seeking a headmaster, or a headmaster seeking an assistant; but it will have very definite uses, both to the public and to education. For the public, it will be a protection against quackery, and some such protection is badly needed. At the present time, anyone, no matter who or what he is, can start a school. By clever advertisement, by the employment of agents, whether professed agents or apparently private individuals, by the judicious cultivation of the parents, he can obtain pupils, and earn even more than a competence by spoiling the minds of the unfortunate pupils entrusted to his charge. A man moves to, say, Brighton or Eastbourne, and takes his family with him. He requires schools for his boys and girls. He will find in the local guides, or in the weekly paper, advertisements of dozens, setting out in the most attractive way the great advantages to be derived from sending his children to one or other of these well-managed establishments for the sons and daughters of gentlemen. The register, whether published or not, will enable him to ascertain, on the best authority—that of the Registration Council—whether the headmaster, his assistants, and the visiting professors, are registered teachers, and thus whether he is obtaining the article for which he is paying or not. If for no other reason than this, there should be a register. But this is a reason that has seldom been advanced; it has, if put forward at all, been second to that of the effect on the profession itself. The desire of teachers to be on an authoritative list of well-qualified teachers was to induce all of them to obtain some professional qualification, as well as literary or academic distinctions. The form that the register appears likely to take will, in all probability, delay this effect; and this probability is largely responsible for the change in the attitude of the associations of teachers.

While, some months ago, their demand was for an effective register, now it is rather for an effective registration council, really representative of the teaching profession. In response to this unanimous request comes the minute of the President of the Board, and many of the associations have heartily welcomed it, and have expressed their approval, if one may use the word, of its provisions. A month has passed since its publication, and no word of dissent has been uttered, so we may well consider the effect of the Teachers' Registration Council.

Whether any statutory powers are given to it or

not, or whatever those powers may be, its influence will be very great by reason of its representative character. Every teacher will recognise its right to speak with authority, because every section of the teaching profession will be represented by a practical teacher. Representing, as it does, every teacher, from the uncertificated teacher in the smallest elementary school, to the most learned professor in the oldest university, its findings will have a sanction never before equalled in the history of education. Its chairman, elected from outside the ranks of teachers, will speak with an authority never before possessed by one man. Its influence for unity and solidarity should be immense; teachers under its guidance should become the members of a learned profession recognised by the public as such. Under it, education should become a science, and its work, extending far beyond the forming and keeping of a register, should convince an indifferent public that education is not merely a means of acquiring sufficient book learning to earn a livelihood, but something altogether higher and better; something that enables people to live.

## THE CONFERENCE ON THE EDUCATION AND TRAINING OF ENGINEERS.

By the REV. DR. NAIRN,

Headmaster of Merchant Taylors' School.

A CONFERENCE on the education and training of engineers was held at the Institution of Civil Engineers on June 28th and 29th last. The conference was under the presidency of Mr. Alexander Siemens, the president of the Institution of Civil Engineers. It was divided into three sections, which dealt with: I., General education—chairman, Mr. A. G. Lyster; II., Scientific training—chairman, Prof. W. C. Unwin; III., Practical training—chairman, Mr. R. Elliott-Cooper.

The papers, which had been previously printed and circulated, were read by their authors. Discussion followed; but the time left for this purpose was scarcely adequate. In Section I., the Preliminary Training of Engineers, there was general agreement as to the principles laid down by a committee of the Institution which was appointed in 1903, and reported in 1906 in favour of the following propositions<sup>1</sup> (*inter alia*):

(1) "Specialisation while at school—that is to say, up to about the age of seventeen—is undesirable."

(2) "A leaving examination for secondary schools, similar in character to those already existing in Scotland and in Wales, is desirable throughout the United Kingdom. It is desirable to have a standard such that it could be accepted by the Institution as equivalent to the studentship examination, and by the universities and colleges as equivalent to a matriculation examination."

<sup>1</sup> The Report of this Committee is published by Wm. Clowes and Sons, Ltd. Price 6d. The summary in the text is due to Prof. Silvanus P. Thompson (see p. 237).

(3) "Instruction in mathematics should be by somewhat modified methods."

(N.B.—These have been widely adopted in schools.)

(4) "A general knowledge of elementary physics and chemistry or natural philosophy is preferable to the pursuit in detail of some particular department of science."

To those who, as is the case with the present writer, are primarily interested in literature, it is gratifying to note the importance attached to literary education in the training of engineers. As was observed by Dr. Gow (see p. 285), it is the duty of an engineer to look after, not only engines, but men, and subjects of general and broad human interest, such as English literature and history, are of use in teaching the future engineer to understand men. Such culture will, moreover, enable the engineer, "in dealing with places and things which have artistic merits or historical associations, to discern not only what is mathematically possible, but also what is artistically impossible." Culture will also enable the engineer to make good use of his leisure hours. To some it may appear that the headmaster of Westminster went too far in his strenuous advocacy of the claims of Latin as the best introduction to inductive science. It should be borne in mind that in some, at least, of the naval colleges, while history and modern languages are extensively studied, Latin finds no place.

Prof. Silvanus Thompson, who also read a paper in Section I., earned general approval by his arguments in favour of a standard examination for secondary schools throughout the United Kingdom, one result of which would be that the goodness or badness of a school could be judged, "not by the triumphs of a few scholarship candidates, but by the proportion of all its scholars whom it brings to a maturity test." The recognition of such a standard test, on the analogy of the *Abiturient* or "maturity" examination in German secondary schools, would introduce regularity into the chaos of conflicting interests by which schoolmasters are at present distracted, in their efforts to bring out one time-table for a future engineer, another for a future solicitor, and so on.

Several of those who took part in the discussion on this paper dealt shrewd and (we hope) effective blows at the craze for separate matriculation examinations held by each of the professional bodies. If the recent conference leads to some step being taken towards the simplification of such examinations, and the reduction of their number, headmasters, in particular, will have reason to remember it with gratitude.

In Section II. there was an interesting discussion on "The Value of a University Degree in Engineering Science, in Relation to Professional Competence." Profs. Fleming and Silvanus Thompson strongly condemned *degrees* in engineering, on the ground that men are led to "cram" in order to add letters to their name, and to prepare for examinations instead of working to acquire knowledge. Both these experts were

in favour of the college training in the subject. It may, perhaps, be suggested, as a means of meeting the difficulty, that the universities should make their degrees depend not only on the final examination, but also on the work done by the student during the whole period of his course.

As to the usefulness of the graduate, there was a difference of opinion. Some employers stated that they engaged graduates by preference; others complained that a degree gives its possessor too exalted a view of his own powers. All, however, agreed that a college or university course in engineering should restrict itself to a training in general principles, rather than embrace a detailed knowledge of machinery which would possibly be out of date before the engineer had completed his college training.

In Section III. there was considerable discussion as to the relation of practical training to college study. Three schemes were outlined and discussed.

I. (a) General education, followed by (b) college, followed by (c) practical training in shops.

II. (a) General education, followed by (b) practical training, followed by (c) college.

III. The North-East Coast (sandwich) scheme, viz., (a) general education, followed by (b), (c), alternate periods of practical and theoretical work.

The scheme which found most favour was the third. One advantage which, as Sir William White pointed out in the discussion, is shared by the second and third schemes is that in them the practical work comes early, enabling the employer to detect those who, through lack of aptitude for practical work, are unsuited to be engineers, and enabling those who are thus rejected to turn their attention betimes to some other profession.

The main result of the conference is to confirm the principles laid down by the committee of 1903-6, already referred to. Five years have elapsed since that committee reported, and secondary education in England has not yet secured such a standard examination as the committee recommended. When that examination comes it may be hoped (1) that the terms "leaving examination" and "leaving certificate" will not be used, as they convey to some parents the idea that their sons' school education may incontinently cease; and (2) that the examination will be conducted by the State and the teacher in conjunction.

If in Sections II. and III. the deliberations of the conference were somewhat inconclusive, nevertheless great good may be expected to result from a frank exchange of views. In every respect the conference may be pronounced a success.

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*Teachers' Notes on Nature Study.* viii + 232 pp. (Blackie.) 1s. 6d. net.—On the whole, this is a distinctly useful collection of material for lessons on plants and animals. The subject-matter is well arranged, and, a few minor details excepted, is accurate. The columns headed "method" are less satisfactory, and show little evidence of what the prefatory note calls "new ways of teaching an old subject." The sketches, white on black, are numerous and uniformly good.

LITERARY EDUCATION AND ENGINEERING.<sup>1</sup>

By the Rev. JAMES GOW, Litt.D.  
Headmaster of Westminster School.

SOME six years ago I was asked to undertake the office of examiner in Latin for the Institution. From my own experience at that time and from the statistics of subsequent examinations, I may fairly infer that Latin is seldom included in the preliminary education of an engineer, or that boys who intend to be engineers pay little attention to this subject; and it is probable that, where Latin is neglected, no very close study is given to any other language. I propose to argue that a literary education, up to a certain point, which I will define, is of as much value to the engineer as to anybody else; and that, at least in the higher walks of his profession, he is likely to be injured by the want of it.

I do not contend that literary studies are of any direct or immediate use to the engineer. His work must be largely deductive and mathematical, on which a literary education has no bearing. But presumably there are occasions when he is called upon to make use of chemistry or geology, or some other inductive science, and he is not properly equipped unless he has a fair knowledge of these sciences. Now it is notorious, at least to schoolmasters, that a boy who passes from the classical side to the modern side of a school has an immense advantage in inductive science over those who have been educated entirely on modern lines. Latin, as we teach it, with grammar and dictionary, is inductive science almost in the abstract. A page of Caesar is, as it were, a large collection of specimens, each of which has to be *parsed*, i.e., classified under numerous heads. And along with this process of analysis there goes a process of synthesis which can hardly be matched with any other material. With words for his subject, the teacher can say, "Construct me a word which has the following six characteristics," and no similar exercise can be set at so early a stage in any other study. Language is thus incomparably the cheapest and the most rapid introduction to inductive science; and a boy who has had a thorough drilling in Latin has acquired orderly habits of mind which make inductive natural sciences easy to him.

Secondly, the engineer is doubtless often called upon to command a gang of foreign workers. The sooner and the better he learns their language the more easily he will control them and direct their labour. The language, of course, may be wholly alien to any that is spoken, or ever was spoken, in Europe; yet the necessary elements of language must always be the same. There are things to be named and relations between them to be indicated, and the man who, by training, is alive to this fact and on the watch for these elements, has a great advantage over another who learns at haphazard. Anybody who has read Colonel Patterson's book,

"The Man-Eaters of Tsavo," will remember how nearly he was killed by his own coolies, and how he saved his life by some timely eloquence. Probably many an engineer has had reason to regret that he could not speak the language of his labourers.

Thirdly, though it is perhaps not the business of the engineer to make contrasts, it is undoubtedly his business to understand them and to give and receive orders accordingly. These transactions require a careful and exact appreciation of words by whomsoever used. It is too often forgotten that the whole profession of lawyers lives in the main on the inability of other people either to say what they mean or to understand what is said to them. The business of the conveyancer is to draw important documents in the sense required, and most of the important litigation between honest people turns on some ambiguity in an Act of Parliament or a will or a contract. The larger the interests in which the engineer is concerned, the more necessary it is that he should study his instructions closely and be quick to discern a verbal difficulty.

Hitherto, I have spoken only of linguistic education, but something also should be said of literary studies proper—the world of books, poetry, history, and the rest. The engineer, in Europe, and I suppose also in India, China, and other countries which have an ancient civilisation, is frequently called upon to deal with places and things which have artistic merits or historical associations that endure them greatly to the general educated public. The French proverb which says, "*Rien n'est sacré pour un sapeur*," implies that, in France, at any rate, the engineer has not always been tender to such sentiments, and even in England—perhaps even in London—there may be found monuments of engineering skill which many people would wish away. But of late years the general educated public has become much more numerous and more highly educated, and I suspect that a time is at hand when it will be advantageous to the engineer to mingle the *utile* with the *dulce*, to discern not only what is mathematically possible, but also what is artistically impossible; not only what is cheap, but also what is nasty. For this purpose some general culture is necessary, some critical faculty, some pleasure in beauty, some habit of reading and delight in reading such as makes a man liberal in mind and sympathetic to the common run of his fellows.

And this same culture which keeps a man from being a prig may also serve to keep him from becoming a beast. I suppose that an engineer has as much leisure as other folk, and it is just as important to him as to them what use he makes of his leisure. Most of the mischief that is done in life is done in leisure, and the rational employment of this time is the real object of general education. To be happy with a book, to know a good book from a bad one, to be able to read a first-rate book over and over again, finding new pleasure in it every time—the man who can do this is master of himself and saved from a hundred base temptations. To these temptations, I imagine, the

<sup>1</sup> A paper read at a conference on the Education and Training of Engineers held at the Institution of Civil Engineers on June 28th, 1911.



engineer at all. But, in reality, there is no fear lonely in a far country and a cruel climate. Many of you must know instances of young men who have gone to the bad in such conditions, and who might have been saved if they had had more resources in their minds and had known what to do with themselves when they were off duty.

But you may say to me that, even if I have proved my case, I have proved too much, and a man who is to have all the education that I want to give him will never have time to become an engineer at all. But, in reality, there is no fear that literary culture will absorb too much time. Against that danger there is a very efficient safeguard. The boy who is going to be a first-rate engineer will not take any more literary education after the age of sixteen or thereabouts. Until that age clever boys are almost always equally clever at every subject, but at sixteen their tastes begin to be pronounced and their minds cease to be receptive except in one particular direction. Parents are seldom awake to this fact. They see a clever little boy amusing himself with a toy engine, or making an aeroplane, or interested in motor-cars, and they assume that his ultimate bent will lie that way, and trundle him off to the modern side or the engineering school. It is a mistake to be in such a hurry. The best plan, I am sure, is to give a boy a general education, mainly literary, up to sixteen, and at that point to watch him closely, and put him to what he wants to learn. If he is clever, he will be successful; if he is not clever, he will at least be happy and proud of his calling.

#### MATHEMATICAL AND SCIENTIFIC SUBJECTS IN THE SCHOOL EDUCATION OF ENGINEERS.<sup>1</sup>

By Prof. SILVANUS P. THOMPSON, D.Sc., F.R.S.

FOR the purpose of initiating a discussion on this subject the writer has chosen rather to set down a few salient debatable points than to utter platitudes that would meet with general agreement. If the result seems disconnected and provocative the reason is self-evident.

In the present chaos of secondary education, the schools of the type which chiefly furnishes boys to the engineering profession are almost wholly destitute of any organisation adapted to that end. From the oldest, such as Eton, Harrow, and St. Paul's, down to the newest secondary schools established by the County Councils, not one, so far as the writer is aware, has any definite educational goal to set before the majority of its boys. Some schools aim definitely at preparing a handful of their scholars for Sandhurst, for Woolwich, for Junior Civil Service competitions, for university scholarships, for conjoint board examinations, or for matriculation at one of the universities. But these aims are for minorities of the scholars. Is there in all London, nay, in all England, a single school which has a definite educational aim towards which

it focuses the training for as many as 50 per cent. of its scholars? In general, schoolmasters devote their energies to preparing a few scholarship candidates, and have no definite educational aim whatever for the bulk of the boys. Until this hopeless state of things is radically altered, and until the goodness or badness of a school is adjudged, not by the triumphs of a few, but by the proportion of all its scholars whom it brings to a maturity test, British education will continue to be in a bad way.

Contrast this state of things with that which exists in the secondary schools all over Central Europe. Austria, Prussia, Bavaria, Switzerland, and even Denmark, are vastly ahead of us here. In all German secondary schools, whether of the *Gymnasium*, the *Real-Gymnasium*, or the *Ober-realschule* type, there is a perfectly definite goal before every boy in the school. Before he reaches the *Ober-prima*, or topmost class, he will have to pass the *Einjährige* examination, or pass out disgraced; and it is his ambition and that of his master that he shall pass not only this, but also the *Abiturient* or maturity examination some three years later. If he passes the *Abiturient* examination of his school—an examination held in his school by co-operation of his teachers with the Government commissioner who comes to conduct it—the way is open for him to any university and to any professional career.<sup>1</sup> If the German boy fails to pass the maturity examination of his school he is marked as unfit for professional life. The universities are closed to him; the Church is closed to him; the higher Civil Service is closed to him. He cannot become a barrister, solicitor, physician, surgeon, veterinary surgeon, architect, engineer, surveyor, patent agent, or accountant.

The immense advantages of this reasoned organisation of the secondary schools can hardly be overstated. A good systematic secondary education is guaranteed to the majority of the boys. A master who might neglect the interests of the majority to specialise on a few clever boys is at once discredited. The test is really a test of the quality of the school. It does not depend on the fashion or the prejudice of a university board. The State, co-operating with the school, sets the standard and decides whether the school is efficient or not. Throughout Prussia, Bavaria, Austria, and Switzerland, the universities have long ago abandoned reliance on their individual matriculations, and accept the certificate of *Abiturient*: they preserve, it is true, a matriculation test, but only for exceptional cases.

Here, with us, the State has not yet (save in Scotland) organised the secondary schools. Each university wastes its energies over holding matriculations and the like. Almost all the professional bodies, such as the Law Society, the Institute of Actuaries, the Society of Apothecaries, also hold amateur matriculations or preliminary examinations of their own to test the general education of candidates for entrance. The result, education-

<sup>1</sup> A paper read at a Conference on the Education and Training of Engineers, held at the Institution of Civil Engineers, on June 28th, 1911.

<sup>1</sup> Except a military career, which begins earlier in the cadet schools. *Abiturienten* can, however, be admitted to the "Offizierkorps" if possessed of the proper qualities of birth and sentiment.

ally, is muddle, waste, inefficiency. The schoolmasters, in despair at the multitude of twenty conflicting matriculations, fix upon none, and let chaos work. On this they are agreed: that of all the matriculations that of London University is the worst, the most doctrinaire in its requirements.

Eight years ago the Institution of Civil Engineers appointed a committee, under the chairmanship of Sir William White, to consider and report on the best methods of training for all classes of engineers. After  $2\frac{1}{2}$  years their report, affirming both the present system of studentship examination in matters of preparatory education, and that of the examination for associate membership, was adopted by the Institution. The recommendations in respect of preparatory education, contained in pages 8. to 10 of the committee's report, state admirably, from the point of view of the engineering profession, the requirements toward which the schools should be organised to work, though the standard suggested is scarcely up to that of the *Abiturient* examination of a German school of corresponding type. Four points in these recommendations may claim attention here:

(1) Specialisation while at school, that is to say, up to about the age of seventeen, is undesirable.

(2) A leaving examination for secondary schools, similar in character to those already existing in Scotland and in Wales, is desirable throughout the United Kingdom. It is desirable to have a standard such that it could be accepted by the Institution as equivalent to the studentship examination, and by the universities and colleges as equivalent to a matriculation examination.

(3) Instruction in mathematics should be by somewhat modified methods.

(4) A general knowledge of elementary physics and chemistry or natural philosophy is preferable to the pursuit in detail of some particular department in science.

With this last recommendation the writer finds himself in hearty agreement. Many mistaken notions are abroad as to science-teaching in schools. Excellent as was the notion to give science a place in the school curriculum, the pressure put upon schoolmasters to introduce science subjects has had some strange results. The writer knows of one school where the "chemistry" taught twice a week consisted in making the boys "get up" a chapter from Roscoe's "Elementary Lessons" without their ever making, or ever being shown, a simple chemical experiment. On the other hand, the heuristic method—a method used in due place by every good teacher since the days of Socrates—has been absurdly pressed, even to the detriment of progress. There can scarcely be anything more dreary than a forced heuristic lesson by a teacher who has neither inspiration nor sympathy. For at school the first object of science-teaching should be to evoke interest, not to impart the facts or data of science, still less to systematise their rediscovery. All that has its place later. The fossilisation of science-teaching is, indeed, the thing now most to be feared.

A lesson on the microscope, followed by an hour's excitement in examining or making slides;

a talk about the telescope and the wonders it reveals, with an actual instrument to see and handle; a chemical chat about oxygen, followed by a few fireworks; all these will be of absorbing interest to intelligent boys of twelve or thirteen. After that a few more systematic lessons will attract, without exhausting the attention of the hearers; and the chance of reading some of the more attractive boys' books of science will be eagerly grasped. Elementary mechanics, the foundation of all engineering, can be made thoroughly attractive by a live teacher who handles his subject in a human way; and he will lead his boys readily from experimental fact to deduced principle, and from deduced principle to simple calculations, which can, again, be verified by experiment. The laws of forces, of the combinations of forces, of balanced forces, of oblique forces; their applications in the case of levers and pulleys and kindred mechanism will be a delightful change from the dreariness of history or the grind of grammar. The bad teacher, of course, can make even electricity as dull and distasteful a subject as the conjugation of irregular verbs. Not until a boy is fifteen or sixteen, and is approaching the stage of matriculation, should science be allowed to degenerate into a grind. The stimulus of the approaching examination will carry him through the drudgery; and the amount of drudgery will be felt to be small because of the interest already acquired in the subject itself. It can hardly be too strongly urged that any specialisation in scientific subjects before that stage has been passed is essentially out of place and harmful.

Reverting to mathematics, it may be remarked that a great change has already come over mathematical teaching during the last ten years. This is partly due to the general discontent with the bad methods in vogue, partly to the strenuous crusade undertaken by Professor Perry and other reformers. The recommendations of the Institution Committee of 1906 have already been widely adopted in the schools. They are worth recalling:

Instruction in mathematics should be given by methods differing considerably from those usually adopted in the teaching of this subject merely as an intellectual exercise. The geometrical side of mathematics should be fostered, and before they leave school boys should be conversant with the use of logarithms, and with at least the elements of trigonometry, including the solution of triangles. It is also of importance that instruction in practical arithmetic should be carried further than has been the case hitherto, with the object especially of encouraging the use of contracted methods and operations in mental arithmetic. . . . Special attention should be given to drawing: the instruction should include ordinary geometrical drawing, with orthographic projection, curve drawing, freehand drawing, and practical mensuration.

One difficulty, which has been explained by masters of progressive tendencies in the promotion of sensible reforms such as these, has been the stupidity of inspectors who have not yet grasped the importance of them. The writer is cognisant

of a case—antecedent to 1906 it is true—where the head of a school who had taken great pains to reform the arithmetical teaching on the lines of Sonnenschein's arithmetic, particularly in the introduction of contracted methods, was amazed to find that the inspector disallowed all the answers worked on this plan! The benumbing influence of the older Cambridge traditions is also felt. The writer came across a case in his own experience where an experienced master—a high wrangler in his day—who was employed as private coach to a rather backward student in the Technical College, indignantly refused to give him—as it was suggested he should—some exercises in plotting curves from equations, on the ground that it was not his business to teach practical mathematics. Bad teaching is responsible more than anything else for distaste of mathematics. A really capable teacher will make his boys enthusiastic over matters that in the hands of others are dead dull. A class can be made—the writer has seen it happen with students of seventeen or eighteen—wildly excited over Bessel's functions; and a class of young boys has been known to sit up late in the pursuit of finding out all the prime numbers that occur between 1,000 and 2,000. If mathematical teaching is dull, it is the fault of the teacher.

Of all the changes that have come over the teaching of mathematics, the greatest is the almost complete disappearance of Euclid. Theoretical geometry is now taught on other lines. But the writer is not sure whether the loss is not greater than the gain. Euclid in the hands of an uninspired teacher was probably the worst possible way of teaching geometry; the worst, because it was too often attempted with boys who had not previously learned any geometrical drawing, and had, therefore, no conception as to what it was all about, and because the way in which the subject was treated was often merely to learn by rote something that neither the teacher nor the taught really understood or valued. But the teaching of Euclid was in one respect absolutely invaluable. If it is approached rightly, after practice in geometrical drawing which familiarises the learner with the concrete facts, the study of Euclid constitutes an unrivalled training in methodical and cogent reasoning. The great charm and value of Euclid's presentation is the way in which one proposition hangs logically upon another. Sequence and sustained cogency of argument are the vital matters. The bad teacher ignored all this, requiring only verbal accuracy in memorising details, and brought disrepute on the finest mental discipline ever introduced into education. But Euclid is gone, and there has been nothing put in its place. It is the writer's deliberate opinion that boys nowadays are less capable of following a sustained train of thought than they used to be. The mental discipline of the chain of connected thought is strange to them. There may be other causes also; but this is assuredly a cause.

It may be that in the evolution of literate studies, particularly in the teaching of the analysis of sentences and in the logical composition of

exercises, some equivalent discipline may be found. But it is doubtful whether in the study of English in the schools so much attention is given to analysis as was the case ten years ago. Every educator interested in maintaining a good balance in the subjects of preliminary education will surely agree that while premature specialisation, whether in languages or in science, is to be deprecated, boys must be trained in thinking and in the expression of thought. In the conflict of subjects one is apt to lose sight of the fact that training in thinking and in the correct expression of thought is more essential than the study of any particular subject, whether Greek or geometry. It is, after all, not so important whether the hours per week given to science should be a few more or a few less, as that in all studies—science, mathematics, language, or literature—there should be cultivated precision in the use of words and cogency in modes of thought. These things are more important in the long run, and vastly more important in the ultimate making of a professional engineer, than the acquisition of a hoard of scientific facts. The secondary school must not degenerate into a house of cram.

#### APPARATUS FOR USE IN TEACHING GEOGRAPHY.

By B. C. WALLIS, B.Sc., F.C.P., F.R.G.S.

##### I.—OPEN-AIR WORK.

**D**URING the year 1910 the Education Committee of the Teachers' Guild directed a specially elected subcommittee to hold an inquiry into the open-air teaching of geography in the neighbourhood of London. A *questionnaire* was issued and many replies received, and the general result appears to force the conclusion that there is on all sides a keen interest in open-air work, and in some cases great enthusiasm. Many teachers take their classes to work in neighbouring parks or open spaces, and some go on extended excursions; but in most instances the work done by the pupils is solely observational. In few cases does there appear to have been much attempt at practical work by means of the plane table or other apparatus.

Apparatus for use in the teaching of the principle of triangulation appears to be lacking in many schools and it may be advisable to consider four stages of work in this connection. First, in the school grounds, this work is most easily introduced by using a millboard placed upon some level object, with an ordinary ten-inch ruler, into which have been stuck, near the ends and near one edge, two three-inch pins, placed vertically. By using this as a sighting ruler, good results of a simple kind can be obtained.

Secondly, in a larger area, the plane table can be used to make a rough plan of the school playing-field, but there arises here the difficulty, when working with a class, of the transference of the plane table from one end of the base line

to the other and the consequent slowness of the work, since two sights only fix one point; and, therefore, at the next stage, which may be regarded as alternative to the second stage, an instrument designed by Dr. Miller, of the Dollar Institute, Scotland, which he calls "The Cartograph," may be used. This instrument is an improvement on the simple sighting ruler of the plane table. The additions consist of a small attachment in the left-hand end, as shown in

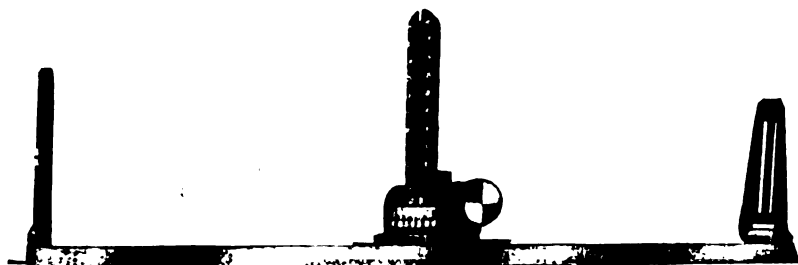


FIG. 1.—The Cartograph.

Fig. 1, by means of which the instrument is pinned down, and a cursor shown in the middle of the rule. Attached to this cursor is a spring with a steel tip, by means of which a pin-prick marks the position attained when the observation has been made. This cursor consists of two upright knife-edges, each marked with a scale, and both capable of being simultaneously moved away from the centre line of sights by means of the screw shown in Fig. 1, the distance through which the edges are moved being read off from a horizontal scale. Two pupils work this apparatus, one at the plane table with the cartograph, and one who moves from place to place, and stands at the points of which observations are desired. This pupil carries a pole of fixed length, which he holds horizontally and sights from its middle, so that he may be certain of holding the pole at right angles to the line of sight from the cartograph. At the ends of the pole are two white discs, the vertical edges of which are held in a line with the knife-edges respectively.

At the first observation, the knife-edges are fixed at a definite distance apart, and this determines the scale on which the map is being drawn; in subsequent observations the cursor is moved, but the knife-edges are not moved. When the cursor is so placed that the length of the pole just fits the aperture between the knife-edges, a pin-prick is made, which fixes the position on the map of the place at which the pole is held. By means of a reading from the vertical scale on the knife-edges in relation to a cross-wire on the upright at the left-hand of the cartograph (Fig. 1) the height of the place observed above the level of the plane table can be obtained. The other operations are those usual in plane-table work, but there are two great advantages: first, all the work may be performed from one position of the plane table, without the trouble of measuring a base line, and, secondly, heights and relative positions can be obtained at one sighting. The carto-

graph can thus be used for making maps of stretches of country, and at the same time for adding to those maps rough contours of the country. Those teachers whose courses include field work with a plane table should communicate with the makers of the instrument (1), and obtain a prospectus. Teachers who are considering the advisability of performing field work of this kind would be well advised to consider this instrument, which obviously expedites the construction of field maps. The principle of the apparatus lies in the fact that at each observation the cartograph reproduces automatically an isosceles triangle, of which the observer's eye is the vertex, and the distance between the knife-edges the base, and that this triangle is exactly similar to a larger triangle, of which the observer's eye is again the vertex and the sighting pole the base.

Dr. Miller is to be congratulated upon the invention of an ingenious instrument which should reach a larger public than that of schools where practical outdoor work in geography is attempted.

Plane-table work has not been developed in this country to the extent to which it is used in India and the United States, and the constant recourse to the theodolite has led to many attempts to provide a simple form of this instrument for school use. Theodolite work is necessarily of rather an advanced nature, on account of the measurement

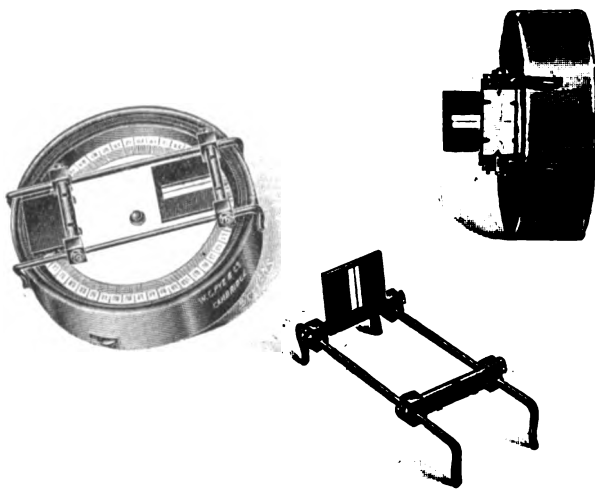


FIG. 2.—Beame's Patent Sight.

of angles, and of the fact that the map is afterwards made in the class-room from the data obtained in the field. The early states of angle-measurement, whether for the purpose of measuring distances or heights, should, perhaps, be made with simple home-made apparatus. For this purpose three pieces of blind stick, jointed at two places, can be used to give very satisfactory results, and the pupils can draw the base line to scale and set up the measured angles, thus obviat-

ing all calculations. Similar results may be obtained with the simple clinometers and angle-meters supplied by the instrument makers named at the end of this article.

In a similar way the use of the prismatic compass may be introduced by means of the patent sight which has been invented by Mr. Beame (2), and is illustrated in Fig. 2. On this instrument a single reading gives the required angle.

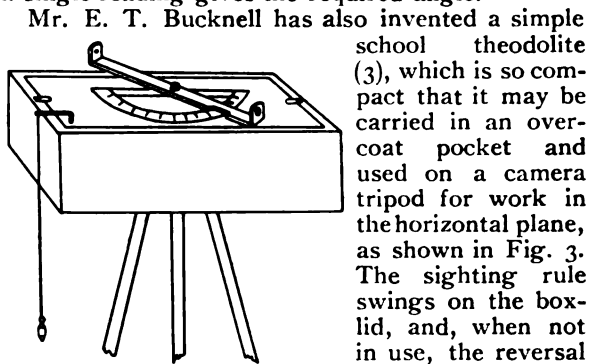


FIG. 3.—Bucknell's School Theodolite.

Mr. E. T. Bucknell has also invented a simple school theodolite (3), which is so compact that it may be carried in an overcoat pocket and used on a camera tripod for work in the horizontal plane, as shown in Fig. 3. The sighting rule swings on the box-lid, and, when not in use, the reversal of the lid turns all the projecting parts of the instrument inside the box. The price of this instrument is five shillings, so that many members of a class may use such instruments at the same time, a fact which will be appreciated by those teachers who have taken a whole class out for field work and found a difficulty in keeping all the pupils occupied.

In Fig. 4 is shown a combined theodolite, sextant, and clinometer, invented by Mr. W. Jamieson (4). It consists of a wooden frame, gun-shaped and fitted with sights A and B. In front of the sight B is a half-silvered mirror, C, with scale so arranged as to swing either vertically or horizontally. At D is a clinometer reading to degrees; a compass is placed at E, and a plummet added. Messrs. Nicolson supply also a simple theodolite, invented by Dr. Miller, while



FIG. 4.—Jamieson's Combined Theodolite, Sextant, and Clinometer.

Messrs. Griffin (5) supply clinometers, plane tables, and theodolites, of which a more elaborate form is shown in Fig. 5.

In connection with this field work, and in special relation to the more purely geographical work of rough contouring, the reader may be referred to the description of a piece of home-made apparatus given by Mr. J. Fairgrieve in the *Geographical Teacher* for spring, 1911. The apparatus is described and illustrated, and additional illustrations are given of the kind of work which may be done.

Map-makers are beginning to realise the importance teachers attach to outdoor work, and Messrs. Stanford (6) have in course of publication a series of outline contour maps for use out-of-doors. Maps of the Lea Valley near Enfield, the Brent Valley near Hampstead, and Harrow are ready, while others are in preparation. These maps will be invaluable for short distance excursions, and for fixing the relation between actual field work and the general lie of the land. Messrs. Bacon (7) have in course of publication a series of maps of somewhat larger areas, such as the Lea Basin, the Bristol Avon Basin, the Basin of the Wey and the Mole, which will be useful for more extended school journeys. Messrs. Stanford's maps are on a scale of one inch to the mile, while those of Messrs. Bacon are five miles to the inch. The price in both cases is one penny.



FIG. 5.—A Theodolite.

Open-air work also includes the reading of meteorological instruments, and some makers of useful pieces of such apparatus are named below (8). "What will the weather be?" (9) contains notes based on observations made at Uppingham School. The notes are arranged in relation to wind direction, and for each wind notice is taken of the state of the barometer, whether rising, steady, falling, &c., and from the observation of these two factors, the probable weather is stated in relation to the time of year.

Useful information as to the meteorological instruments is contained in "Weather Instruments and How to Use Them" (10), which is illustrated to show the instruments in position, and contains a chapter on weather-recording.

Outdoor work should be specially encouraged during the holidays, and a useful work for this purpose is the "Field Note-book of Geological

Illustrations."

This book contains eighty-six photographs, usually two on a page, with pages of drawing-paper for sketches or notes interleaved. These photographs are arranged in sections to illustrate certain tabular statements; e.g., there are nine pictures in connection with the aqueous or stratified rocks. The end of the book contains additional leaves for field work, and, on the whole, should serve as an excellent guide to older scholars for use either on geographical excursions or on their holidays.

- (1) The Cartograph. Messrs. Baird and Tatlock, 45, Renfrew Street, Glasgow. £1 17s. complete.
- (2) Beame's Patent Sight. Messrs. W. C. Pye and Co., "Granta" Works, Cambridge. 7s. 6d.
- (3) Bucknell's School Theodolite. Messrs. W. and J. George, Ltd., Birmingham. 5s.
- (4) Jamieson's Combined Theodolite, Sextant, and Clinometer. Mr. W. B. Nicolson, 166a Bath Street, Glasgow.
- (5) Messrs. John J. Griffin and Sons, Ltd., Kingsway, London, W.C.
- (6) Mr. Edward Stanford, 12, Long Acre, London, W.C.
- (7) Messrs. G. W. Bacon and Co., Ltd., 127, Strand, London, W.C.
- (8) Messrs. Negretti and Zambra, 38, Holborn Viaduct, E.C.; Messrs. Pastorelli and Rapkin, 46, Hatton Garden, London, E.C.; Messrs. Lander and Smith, Scientific Instrument Makers, The Medical Hall, Canterbury; Mr. J. H. Steward, 406, Strand, London, W.C.; Mr. J. J. Hicks, 10, Hatton Garden, London, E.C.
- (9) "What Will the Weather Be?" By H. G. Busk. (Cambridge: W. Heffer and Sons, Ltd.) 6d. net.
- (10) "Weather Instruments and How to Use Them." By D. W. Horner. (London: Witherby and Co., 326, High Holborn.) 6d. net.
- (11) "Field Note-book of Geological Illustrations." By H. D. Sharpe. Seventy-seven photographs and maps. (Manchester: Flatters and Garnett, Ltd., 32, Dover Street.) 3s. net.

## EYE- AND EAR-TRAINING IN MODERN LANGUAGE TEACHING.

### GERMAN READING AND SPELLING.

By W. E. LLEWELLYN, B.A., B.Sc.

THE beginner usually finds it much easier to establish the connection between sound and symbol in German than in French, since the spelling is so much less irregular, and since he usually comes to this language later in life.<sup>1</sup> As a consequence, many teachers do not think it necessary to give preliminary practice with the phonetic script; though, if the pupil has already made use of it in French, he will easily learn the half-dozen new symbols needed for German, and practice with the script will be found especially useful in impressing the importance of the glottal stop (the *Kehlkopfsverschlusslaut*, known as the "Knacklaut" in the school-slang of the German teacher).

But whether the phonetic vowel- and consonant-charts be employed or no, systematic practice in the sounds is of the highest importance. For this purpose, a vowel-chart in the conventional characters should be used frequently, and the even more important consonant-chart kept before the pupils at every lesson.

The treatment in German need not be so

laboured as in French, so that the long vowels, the "regular" diphthongs, and the principal consonants may very well be presented and learnt at a single lesson.

The chart of long vowels will be:

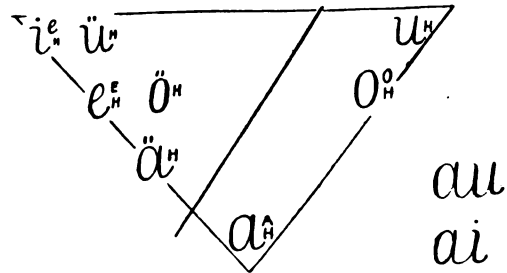


FIG. 1.

Attention will be directed to the circumstance that H may occur as "the sign of length" with any of the vowels, but that only three of them (*oo*, *aa*, *ee*) are found "doubled," while the "irregular" symbol *ie* is employed instead of the non-existent *ii*. The teacher will remark that the child is not spared the bother of deciding which form he must use (*oh* or *oo*, *ie* or *ih*) in dictation, or in writing the word from memory. But the chart will save him from inventing such a form as *uu*, and if *e* is written larger than *h* in the digraph *i^e*, it will serve as a reminder that *ih* is rare, and occurs only in a few such words as *ihr*.

The short vowels may very well be omitted from the chart for the first week or two. An English child who has mastered the pronunciation of the long vowels falls easily and naturally into the trick of relaxing the organs to form short vowels (especially when a succeeding double consonant "gives the signal"), and it is worth while to concentrate for a time on the production of the sustained, pure, and "more-foreign" sounds.

The main difficulty will be, of course, the extirpation of the English glide or diphthongising trick. To this end (since the tongue insists on trying to rise in the middle of the vowel), the outer vowel series of the chart should always be practised in downward succession, and each sound repeated twice or thrice. The influence of the preceding sound, as well as the anticipation of the sound to come, is potent with the Englishman, so that it is not until he makes his second or third attempt that the influence of the preceding vowel is forgotten; his organs need more than one command to keep still. And to nullify the glide produced by succeeding consonants, the vowels should also be practised now and again in company with consonants, especially with *l*, *r*, and *ch*.

The line of division which is drawn on the chart has its importance. It will serve to impress the fact that *ch*, when it occurs after back vowels, denotes a "back" or "throat" sound (the *ach-laut*, the sound denoted by the phonetic character *x*), but denotes a "front" sound (the

<sup>1</sup> German, however, has considerable claim to be the first foreign language taught to English children. Its readier appeal to the ear, its more regular spelling, and the less remote aspect and sound of the "everyday" words, give it decided advantages over French. And if only short sentences, with much the same word-order as in English, are used in the opening lessons, and if formal grammar is introduced only in small instalments, as in the more modern text-books, children find it decidedly easier than French in the earlier stages. I am satisfied from experiment that the sum-total of French and German learnt is greater when German is the first language attempted, and have never ceased to regret that this experiment was cut short by an official assurance that the Board of Education had an unshakable *a priori* conviction that beginners must find French easier.

*ich-laut*, the "teeth" sound, the phonetic  $\text{ç}$  when it follows front vowels or the front consonants  $l$  and  $r$ .

These two sounds need not be made a stumbling-block if this simple generalisation is insisted on, and if children are *not told beforehand that they are "difficult."* Children are only too apt to believe such foolish statements. Not until they have produced the sounds quite accurately should they be told that these are supposed to be the most difficult sounds in the language, and permitted to enjoy their facile triumph.

To obtain the *ich-laut* let them give the English word *Hugh* with emphasis (write the word on the board, but do *not* give a pattern pronunciation), and then attempt to isolate the initial sound for themselves. The sound is *not* difficult, or even new, to folk who speak moderately good English, though it is not of common occurrence. The class may next practice it as an initial

left!"  $\text{x}$  is used as a general sign to denote any consonant, so that  $\text{xx}$  denotes the "shortening" effect produced by two following consonants.

The chart in this form is more detailed than the phonetic table. A form less full will serve for ordinary use.

Next for the consonants, which will need much care. Impress the distinction between voiced and unvoiced consonants (*stimmhaft* and *stimmlos*), and then present the chart in its first stage:

| stimmlos. | stimmhaft. |
|-----------|------------|
| F f       | W w        |
| K k       | G...       |
| T t       | D...       |
| P p       | B...       |
| Sch sch   |            |
| Z z [=ts] |            |

Here the first column shows the "key-consonants," pronounced as in English, and therefore set down "on the right."

A capital letter denotes a position at the beginning of a word or syllable, and a small letter any other position. So that the combination P p shows that this letter is *always* pronounced as in English (but with more emphasis, with a following breath, forcibly enough to extinguish a wax vesta), and W w shows that this letter is *always* the voiced counterpart of F; but the single capital B followed by dots impresses the fact that this letter is *only* voiced as an initial, while the blank opposite Sch shows that its voiced counterpart does not exist as a native sound in German.

Add bit by bit, as circumstances demand, the less regular symbols on the left until the chart takes as its final form some such shape as Fig. 3.

This may seem complicated at first glance, but if the teacher has insisted firmly on the F

K  
T  
P  
Sch

series as a starting-point, and reminds the class that "the sheep are to the right," the pupils can use these as key-letters, and will remember that *any other symbol lying to the left must be the "irregular" symbol which denotes that same sound*, whilst those in the other column are the voiced counterparts of these key-sounds.

The "foreign" and the old-fashioned or "disappearing" symbols are enclosed ("caged-in"). An asterisk refers the pupils back to the vowel-chart, and reminds them that  $\text{g}$  assumes the *ch* sound ( $\text{ç}$ , *ich-laut*) after *i*. Teachers who prefer

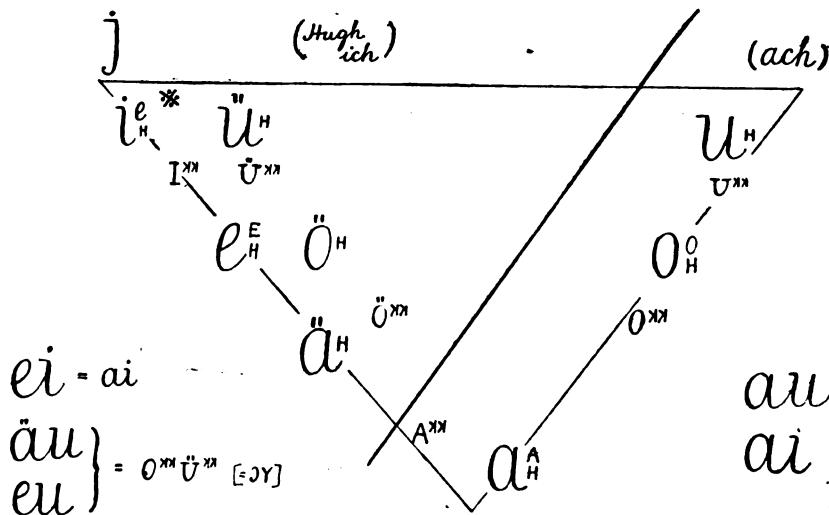


FIG. 2.

("chen") and lastly, after the front vowels, as well as after  $r$  and  $l$ . Any tendency to substitute *sch* (the phonetic  $\text{ç}$ ) should be checked by recommencing the practice from the "Hugh-hew" point, and by contrasting the "steam-escaping" sound of  $[\text{ç}]$  with the "wind in the pine-trees" sound which is required.

Nor is the *ach-laut*  $[\text{x}]$  unfamiliar to English ears. Children know it quite well as the "throat-clearing" sound. The only difficulty to be overcome is the reluctance of over-sensitive pupils to practise this vulgar noise.

These catchwords (*Hugh, ich, and ach*) will be added to the chart, and then stage by stage will be added the irregular diphthongs, the short vowels, and the vowel-consonant  $j$ . When an asterisk has been put beside  $i$  to remind the pupils that the letter  $\text{g}$  is used after  $i$  in some words as the sign of the *ich-laut*, the chart will assume its final form (Fig. 2).

Note that the irregular diphthongs are placed on the left. "Sheep to the right, goats to the



this sound as a terminal in such words as *Berg*, *Talg*, *Weg*, will make the asterisk bear this additional signification, and are recommended

| STIMMLOS.  |         | STIMMHAFT.  |
|--|---------|-------------|
| $\boxed{Ph--ph.}$  | Vv Ff   | Ww          |
| --ch[s] --g*   | KK      | G--         |
| $\boxed{Th}$ --d.  | Tt      | D--         |
| --b <sup>[t]</sup> <sub>[t]</sub>  | Pp      | B--         |
| { --ss-- --sz <sup>[t]</sup> $\beta$ <sup>[t]</sup> --s <sup>[t]</sup>     |         | { S--       |
| { --ff-- --f <sup>[t]</sup>  |         | { f--       |
| S <sup>[t]</sup>   | Sch sch | $\boxed{J}$ |
| $\boxed{C\begin{smallmatrix} i \\ y \end{smallmatrix}}$ --t <sup>[i]</sup> | Zz -ts  | --ng        |

FIG. 3.

to make a separate *ich-* and *ach-laut* chart, so that these confusing "exception-rules" may be generalised graphically, thus:

| Stimmlos   |  |
|--|--|
| ch--   |  |
| $\left. \begin{matrix} i \\ r \\ \ddot{u} \\ e \\ \ddot{o} \\ \ddot{a} \end{matrix} \right\} \begin{matrix} ch = \text{ich-} \\ g^{[t]} = \text{laut} \\ [f] \end{matrix}$ | $\left. \begin{matrix} u \\ o \\ a \end{matrix} \right\} \begin{matrix} ch = \text{ach-} \\ g = \text{laut} \\ [x] \end{matrix}$ |
| Stimmhaft  |  |
| $\left. \begin{matrix} r \\ i \\ \ddot{u} \\ e \\ \ddot{o} \\ \ddot{a} \end{matrix} \right\} \begin{matrix} g = \text{ja-} \\ \text{laut} \\ [j] \end{matrix}$             | $\left. \begin{matrix} u \\ o \\ a \end{matrix} \right\} \begin{matrix} g = \text{Wagen-} \\ \text{laut} \\ [g] \end{matrix}$    |

FIG. 4.

For myself I prefer to simplify by making the general statement that D, G, B, become unvoiced as terminals (or before a terminal t), and by teaching this pronunciation only, making an "exceptional case" of ...ig. I could even wish, in the interests of simplicity and uniformity,

that the use of the k sound in a terminal ng were not, as Viëtor says, a North-German peculiarity, "auf der Bühne verpönt"; and I confess to being hardly enough to omit the ...ng from the *stimmhaft* position on the chart.

Any teacher of German who thinks the processes I have outlined rather roundabout and laborious is urged to try it with his next class of beginners. He will find that the substance may be taught in a couple of lessons, and a fairly good accent acquired in a fortnight. Against the objection that pupils learn to pronounce German fairly well and readily enough from mere imitation, I should like to urge that they will learn better and more easily from systematic charts; that the duffer, who, as things stand, forgets as easily as he learns, and needs a good deal of correction in his reading, may learn to correct himself if, when he makes a blunder, his teacher will but point out the symbol on the chart and refrain from patterning.

Furthermore, these charts, made once and for all, will assist very much in the teaching of spelling to many successive generations of pupils. They summarise in graphic form the explanations which occupy many pages of print in the grammar-manuals, and should be hung up in view of the pupils at every reading or dictation lesson. Such troublesome points, for instance, as the pronunciation of vowels before *ff*, and the alternative use of *ff* and *ff* in writing, lose much of their difficulty if they are constantly in view on the chart, and if the teacher has impressed once and for all the circumstance that *ff* is always a double consonant, while *ff* may (and *ch must*) be a single consonant. The terminal *ß* difficulty will vanish if the sign is but inserted on the chart, with a full-stop, when the teacher attempts "the German writing," if he is so temerarious.

The use of such an intermediate script as was discussed in my article on French is not necessary in teaching German, but teachers are urged to keep to the principle laid down there of not giving a pattern pronunciation, and of allowing the learner "to make his own attempt at pronouncing new words." When difficulties occur, the vowels should first be written on the board and read by the pupils, the initial consonants of each syllable and the succeeding double consonants added and read; next, the other terminal consonants; and last, the irregular symbols, thus:

- (1) u er ä i ei
- (2) Zu ver lass i kei
- (3) Zu ver lass ig keit.

*Chambers's Home Management Manuals.* By Wilena Hitching. Book I., 56 pp.; Book II., 60 pp.; Book III., 64 pp. 4d. each.—These little books are full of useful information as to the management of a house. Girls will be all the better for reading them. But the books would have been much more attractive had some good illustrations been included. We hope that, in addition to reading the books, the girls will have plenty of opportunities of doing practical work.

## THE SCIENCE EXAMINATIONS OF THE BOARD OF EDUCATION.

**T**HE Board of Education has announced already that the existing regulations with regard to its science examinations were under consideration. The Board has now come to the conclusion that it is necessary to effect an extensive reorganisation of the system under which these examinations have been conducted. It is stated in Circular 776, dated June 20th, that sufficient guarantees of the efficiency of the more elementary instruction given in evening classes, whether in science or in other subjects, are now furnished by the system of inspection, and by the regulations under which the Board's grants are distributed, and that the continuance of examinations of the standard now known as Stage 1 is not calculated to promote the system of grouped courses, which the Board's regulations are designed to encourage for junior students.

Consequently the Board has decided to hold no further examinations of Stage 1 standard, but will continue, in 1912 and subsequently, to hold, in certain subjects, examinations of superior standard, principally for students in evening classes. It is also proposed to discontinue practical examinations, and to secure by other means the educational object which those examinations were intended to secure. The Board accordingly proposes, in future, to hold examinations in two stages only, which will be known as "Lower" and "Higher" respectively. The standards of the Lower examinations will be equivalent to those of the present Stage 2 examination.

After pointing out that the work of students in day technical institutions should provide courses closely related to local industrial and other needs, and conducted in as close association as possible with the productive activities of the locality, the circular states that the Board has decided that students in such full-time courses will not, as a rule, be eligible for admission to the reorganised examinations, and that teaching institutions of high standing shall be encouraged, under the guarantee of a careful supervision by the Board, to hold their own examinations for students who have passed through such courses and to issue their own diplomas to successful candidates.

The Board is prepared, on certain conditions, to endorse such diplomas. The Board trusts that a diploma endorsed by the Board will be recognised by all concerned as having at least a definite minimum value and standard, and in these circumstances it is proposed, subject to certain exceptions, to discontinue the issue of personal certificates of success in the Board's examinations.

As has been said, the standard of the new Lower examination will be equivalent to those of the present Stage 2 examinations; those of the Higher examinations will be intermediate between those of the present Stage 3 and Honours examinations. In mathematics the standard of the Higher examination will be approximately that of the present

Stage 6. Candidates must be over seventeen years of age on July 31st following the examination.

The circular makes due provision for modifications in the conditions of the awards of Royal scholarships and free studentships in science and of Whitworth scholarships and exhibitions, which the changes enumerated will bring about.

## A SCHEME OF WORK IN PRACTICAL SCIENCE.

By W. J. GIBSON, M.A.

Headmaster of the Nicolson Institute, Stornoway.

**W**ITHIN the last few years a remarkable change of aim, with an accompanying change of method, has taken place in the school teaching of science. The main object of the science teacher is no longer to convey into the pupil's mind scientific facts marshalled in orderly sequence. He proposes instead that the young student should make a first-hand acquaintance with scientific method, should become, in short, with a certain amount of guidance as to the mode of his experiments, an investigator himself. The boy's natural curiosity in the things about him is cultivated. He is encouraged to observe carefully and to record accurately what he sees. He asks himself questions as to what the phenomena mean, and how they are to be explained. When he has formed in his mind a possible explanation, he puts it to the practical test of experiment. This last involves a training in manipulation, in the elimination of sources of error, and in such isolation of factors as will enable the experimenter to feel that he is asking Nature only one question at a time. In recording his observations he discovers how difficult it is to give exact evidence and to avoid confusing what is seen with the inference drawn from it. The exercise of the imagination and of the judgment that is secured as theories are formed and means of testing them devised, the system, order, and foresight required for successful experimenting, and the honesty and truthfulness that are essential requirements in any scientific research, form together a valuable factor in a boy's intellectual and moral training.

By the end of his school course he should find himself equipped with some first-hand knowledge of the earth on which he lives, and of the forces that are acting on it and on him. He should know something also of the science of living things. This is necessary if he is to have any intelligent understanding of himself, and of the animals and plants that share his environment. Though his actual acquirement of knowledge in these subjects may be very limited, his training should give him some direct acquaintance with the toilsome and painstaking methods by which the race has had to win its scientific knowledge.

Biological knowledge, however, presupposes a certain acquaintance with chemistry and physics. All scientific work, moreover, is based on exactness of observation and precision of statement;

hence the study of these subjects must be quantitative. From the first the pupil must recognise that in a sense "science is measurement"; although he will also realise that that alone will not take him far. His quantitative results are only the raw material on which a sound judgment and a disciplined imagination may work.

If this statement of the aim and range of the school study of science be accepted—and some instructors will not so accept it—a school course of science must provide:

(a) Exercises in exact measurement, not as a thing in itself, but as a means to an end.

(b) Observations and experiments on changes which leave unaltered as regards constitution the materials experimented on (physics).

(c) Changes which are accompanied by an alteration in the composition of the substances employed (chemistry).

(d) Physical and chemical changes that arise in connection with the living protoplasm of plants and animals (biology).

(e) Man's relation to his environment generally (geography).

In the study of (d) and (e) the pupil extends his knowledge beyond the scope of his laboratory experiments: he attempts a simple regional survey of his own district, including some investigation of its fauna and flora, its commercial products, and the industries, the trade, and the distribution of its population.

The general method followed should be such that the different aspects of study indicated will be regarded as constituting one subject, not many. Though much knowledge in one direction will not be acquired, what is obtained is to be of such a kind as will not need to be unlearned, and the method by which it is arrived at must be sound. Observation, hypothesis, experiment, judgment, is a series of mental attitudes that must be passed through again and again.

In the mind of a teacher the question naturally arises as to how far a course of this extended range is practicable in the present crowded state of the school curriculum. The following outline of a scheme of instruction in practical science on the lines suggested may be submitted, as suitable for a secondary course in which three or four hours a week for five years can be given to the subject.

#### A. Extension.

(a) *Length*.—Standards, English and metric, measuring instruments, making of units, measuring of distances, finding mean of several measurements, the idea of percentage error, scales, devices for measuring small lengths, diagonal scale, vernier, sliding gauge, micrometer screw, measurements of curved lines, diameter of circle, cylinder, sphere, ratio of circumference of circle to diameter, various methods of measuring circumference. Circular measure.

(b) *Area*.—Rectangle, parallelogram, triangle, trapezoid, polygon, circle, various methods of checking result obtained for area of circle, the ellipse, areas of irregular figures, exercises on maps.

(c) *Volume*.—Cubic inch and cubic centimetre, the building up of a cubic decimetre, measurement of volumes of square prisms, volume by displacement, volume of

cylinder, content of hollow cylinder, capacity. Volumes of liquids, pint and litre, use of pipette and burette, making and graduating pipette; a variety of exercises on volume, length, and thickness of cylindrical solids, volume of square prism and pyramid, of cylinder and cone; volume of irregular solids by displacement.

#### B. Mass.

Mass (quantity of matter) and weight (gravitational pull); mass of equal volumes of same substance, of different substances; unit of mass—pound and gram. Mass by counterpoising, the beam-balance, use of balance, various exercises in weighing. Relation between mass and volume, mass of unit volume, density, density of various liquids and solids.

#### C. Time.

Preliminary discussion of the notion of time. Observations on the sun's apparent movements, length of day, mean solar day, various methods of measuring time, experiments with pendulum, graph of results, seconds pendulum. Curve-plotting and statistical geometry.

Other units derived from the fundamental units: those of velocity, acceleration, and force.

Experimental study of the elements of dynamics.

#### Physics of Air and Water.

Proofs that air is something, various effects of the air-pressure, air-pressure balanced by water-column, by column of mercury, simple barometer, barometric readings and plotted curves, connection of rise and fall with weather; the syphon, syringe, pump, force-pump, air-pump; pressure of air on sq. cm. and sq. inch, approximate pressure on the surface of a man's body. Effect of change of pressure on volume of a gas, Boyle's law, the "Cartesian diver," pressure of gas supply, relative density of liquids by U-tube, Hare's apparatus. Upthrust of a liquid on an immersed body, the principle of Archimedes, relative densities of various substances, Nicholson's hydrometer.

Matter in suspension and solution, filtration, evaporation, percentage of solid matter in sea-water, water of crystallisation, deliquescence, distillation, solvent power of water, osmosis.

Effects of heat, expansion of gas, liquid, and solid, degree of heat, thermometers, conduction of heat, convection, ventilation, Hope's experiment. Change of state, melting points, effect of pressure on melting and vaporisation point, tension of aqueous vapour, hygrometers, quantity of heat, latent heat of water and of steam, specific heats.

#### Chemistry of Air and Water.

*Air*.—Phosphorus burned under cylinder inverted over water, investigation of properties of white solid formed, proportion of air that has disappeared. Similar experiments with sulphur and with burning taper; phosphorus allowed to oxidise, and iron filings to rust in known volume of air. Residual air from these experiments tested. Increase of weight of iron filings in rusting. Inferences drawn from these experiments.

Effects of heat on phosphorus, sulphur, salt, wood, coal, chalk, magnesium, paraffin, sodium, and other substances. Effect on lead and on mercury of heating. The red powder of lead and of mercury heated. Investigation of gaseous substance given off. How does it behave in supporting combustion? This gas supplied in the missing proportion to the residual air left in the earlier experiments. Behaviour of the mixture.

Properties of the active constituent of air studied.

Phosphorus, sulphur, charcoal, iron wire, magnesium ribbon, sodium, burned in it.

The products studied and the action on litmus of their solutions in water observed. Oxides, acids, and hydroxides, and investigation of their properties. Volume of oxygen obtained from a given weight of potassium chlorate. Weight of oxide produced by burning given weight of magnesium ribbon.

*Water.*—Action of sodium and calcium on water. Properties of the gas given off studied and compared with those of oxygen and nitrogen. Magnesium and zinc treated with water and with acidulated water.

Experiments on combustion of candle and coal-gas. Investigation of products. Carbon dioxide and its properties. Carbon dioxide in the air, its sources.

Volume of hydrogen liberated from dilute sulphuric acid by a weighed quantity of magnesium, and from water by a weighed quantity of sodium and of calcium. Quantitative relation between a given weight of magnesium, the weight of sulphuric acid that will dissolve it, and the weight of magnesium sulphate produced; sources of difficulty and of error in the experiment. Combining weights. Equivalents of magnesium, zinc, copper, silver, &c. Easy gravimetric and volumetric analyses.

#### STUDY OF LIVING THINGS.

Parallel with the earlier stages of the experimental work outlined above will run a series of observations on plants and animals. Exactness of observation and the making of accurate records properly dated, and illustrated when necessary by drawings, are to be cultivated at this stage. Most of the work will be best done outside the school and school hours. The study of structure will be mainly concerned with such features as can be observed with the naked eye, and will take as full account as possible of the functions served by the structures noticed. In particular, plants and animals should be observed in their environment and in their relations one with another. This work is a systematic extension of the nature-study which has been carried on throughout the primary course. The boys at this stage have the collecting instinct strongly developed, and will take a pleasure in making representative collections, for example, of the local flora. They should know the common plants and animals of the school district, and should visit and observe them in their habitats.

Typical plants of the common British natural orders will be examined and described, and a simple scheme of classification acquired.

The cryptogams should not be avoided, though there is little opportunity for detailed investigation. Some of them will be found useful during the winter (*e.g.*, mosses, fresh-water and salt-water algæ, and some of the commoner fungi) as affording material for observation when little work can be done on flowering-plants.

At a later stage when some knowledge of physics and chemistry has been obtained, the work in botany and zoology already done will lead up to an experimental investigation of how a plant lives. Such subjects as germination and growth, circulation of water and sap, respiration, nourishment, movement, and reproduction, can be studied in a series of experiments which will be as far as

possible of a quantitative character. A more detailed consideration of structure with the help of the microscope will be associated with these investigations. In particular, the cell as the unit of structure, and the chemical and physical behaviour of the living protoplasm contained in it, will receive attention and be the subject of experiment.

As regards the study of animals, types of the main divisions of the animal kingdom will be examined and described as regards those features that can be observed without dissection (which does not seem advisable at the school stage) having to be resorted to. Different types should be carefully compared with reference to specialisation of function, complexity of structure, and the nature of the physiological processes, so far as these can be observed without injury to the organism that is under observation. It is most important that the animal should be studied as a living thing and careful consideration given to its methods of locomotion and feeding, its places of refuge, its means of defence and offence, its relations to other animals, and its ability to deal with unusual circumstances. Such books as Darwin's "Earthworms," Lubbock's "Ants, Bees, and Wasps," and Fabre's "Insect Life," will show how such investigations can be carried out. Ditches, streams, fresh-water ponds, or, best of all, if available, the sea beach, will supply ample material for observation. A small fresh-water or marine aquarium in the school laboratory is a useful supplement to the outdoor material.

The study of plants and animals will enforce on the notice of the observer the relation of these to changes of the weather. This prepares him to realise the importance of climate as a factor affecting living creatures; and the value of combining with his biological studies a series of parallel observations on the meteorology of his district will become apparent.

The outdoor rambles raise interesting questions concerning the rocks, and knowledge of the simplest facts of geology should be provided sufficient to enable the boys to recognise the common rocks and minerals found in the school locality, and to grasp the main features of the structure of the district and the relation of this to the scenery and physical features generally.

The meteorological and biological records made by the pupils should be gathered together, and the relation existing between them and the geography of the district should be discussed. The connection between the observed geographical features and the geological structure of the locality will be similarly considered. The whole work in the laboratory and in the field will accomplish a regional survey of the school district, illustrated by meteorological records, lists and collections of the flora and fauna, and maps, models, and sketches of the geographical features.

Finally, the activities in the different lines of study will converge on the relation of man to his environment: dynamics, physics, and chemistry will find practical illustration in the phenomena of everyday life; the life-processes in man, and some

even of his economic and social problems, will be found to have their counterpart in certain aspects of the life of plants and animals; the regional study of a district will, in its final stages, take account of the inhabitants, their characteristics, their mode of life, their industries, their history, their antiquities, their language, and their folk-lore. Thus the school work in nature-study and science, in geography and in history, will contribute towards the attainment of the wider outlook that finds in the commonplace facts of one's surroundings the elements of the great scientific problems; that sees man in relation to his environment; and that tries to realise how he affects, and is affected by, the things around him.

### THE TEACHING OF ARITHMETIC.<sup>1</sup>

By J. B. DALE, M.A.

Assistant Professor of Mathematics, King's College, London.

**A** REPORT of a Conference convened in December, 1906, to consider the question of the teaching of arithmetic in elementary schools has just been issued by the Education Committee of the London County Council. The meetings of the conference terminated in December, 1908, and the delay of over two years in issuing the report must be borne in mind in reading those sections dealing with the state of arithmetical teaching in the schools, in view of the fact that, since the report was first drawn up, considerable progress has been made in carrying out some of the recommendations contained therein. This circumstance, however, in no way affects the value of the report, as the primary object of the conference was the discussion of those fundamental principles which should underlie all arithmetical teaching.

This question is one which is engaging the attention of many teachers and educational authorities all over the country, and the problems which have to be faced in London do not differ in any essential respect from those elsewhere. There are, of course, questions of administration and organisation peculiar to each locality, which affect, sometimes to a considerable degree, the effectiveness of the teaching, and before passing in review the main features of the report, it may be well to refer to the more important of such questions in the schools in the London area. These relate to (1) the size of classes; (2) facilities for teachers who wish to improve their mathematics; and (3) discontinuity in the methods of instruction when a child passes from the infant school to Standard I.

With regard to the first of these, the conference made a recommendation upon which special emphasis was laid, to the effect that the size of the classes in arithmetic should not exceed thirty-five to forty. It was considered that upon a

diminution in the size of the classes depended the practicability of the introduction of many of the reforms proposed.

It is also obvious that the introduction of the reforms must depend upon the co-operation of the teachers, and since the report was drafted, the Council has established classes for the further instruction of teachers in arithmetic and mathematics.

In the transition from the infant school, there is at present a gap in the continuity of the children's work, which leads to much waste of time and energy, and considerable bewilderment on the part of the children. There was practical unanimity of opinion that this loss might be obviated by teachers in general being required to have some acquaintance with the theory and practice of teaching in infants' schools. This and other matters relating to the instruction of very young children are discussed at length in the second of the five chapters into which the report is divided.

Of the other chapters, the first is historical and general, the third deals with the co-ordination of arithmetic with science and other subjects of the curriculum, the fourth with the logical and computational aspects of the subject, while the last chapter is a summary of replies to a series of questions issued to over five hundred educationists of various degrees of experience.

The net of inquiry was cast very widely; hence the results obtained should be of very great value. It seems, however, a little unfortunate that the membership of the conference was confined to those who come in contact with the child mainly during the school period of its life, and that no representatives of the university and of the commercial and engineering worlds were invited to assist in the deliberations. The report shows that the conference was fully alive to the necessity of developing the mathematical training in its later stages, with an eye to the future vocation of the pupil, but there is some danger that, without expert advice, the special requirements of the vocation will be the product of the teacher's imagination, rather than those actually to be met. That this is really the case seems to be proved by the existence of several commercial colleges and Civil Service classes, the reason for the existence of which is chiefly the fact that the knowledge of arithmetic which the average boy or girl carries away from school is not of a type suited to the requirements of commercial life.

It is stated that on the majority of the points considered the opinion of members of the conference was unanimous. The point upon which differences chiefly arose was the method to be adopted in teaching quite young children. One party held that it was necessary that all objects by which number is taught should be identical in form; the other party maintained the need for variety in the objects. The question seems to be an appropriate one for investigation by experimental psychologists.

Considerable stress is laid upon the correlation of arithmetic with other subjects of the curriculum.

<sup>1</sup> Report of a Conference on the Teaching of Arithmetic in London Elementary Schools. (London County Council Education Committee.) 134 pp. King and Son.) 1s.

In many schools much progress has been made in breaking down the partitions separating arithmetic from geometry. But this is only one subject out of many which can be brought into connection with arithmetic. The question was considered both in its theoretical and practical aspects, and the answer framed by the conference to the question, "From what subjects of the curriculum shall problems be drawn which are to be the motives for the elaboration of mathematical processes?" will be found below (Extract C.).

The reduction of the principles there enunciated to practice is to be found in an outline syllabus of illustrations of co-ordination based upon those in use in the demonstration schools of the London Day Training College, and arranged to be spread in five stages over a period of about seven years.

To us it seems that there is considerable danger that when two subjects are thus taught simultaneously, one will engage the attention of the child to the exclusion of the other. Arithmetic—and, indeed, all mathematics—is for the majority of children *hard*. Of all the subjects studied at any stage, it probably makes the greatest demands upon the power of attention, and upon the exercise of the reasoning faculty. Arithmetic stands to handwork, geography, nature-study, &c., much in the relation of powder to jam, and it requires great cunning and skill on the part of the teacher so to mix the two that the child shall be prevented from taking only the jam, leaving the powder behind. We agree with the view of the conference that problems taken from correlated subjects form a good starting-point for the development of new mathematical weapons, and serve as illustrations to elucidate some difficult step in reasoning, but we think that they should be used as sparingly as possible, in order that the attention of the pupils may not be distracted by unessentials. On the other hand, there is little fear that the essential features of lessons in nature-study, geography, &c., will be obscured by any subsidiary mathematical calculations which may be introduced.

On another page of the report we find attention directed to the need of training the pupil in giving oral and written expression of his understanding of principle. Our own experience of the work done in school-leaving examinations and by university undergraduates, especially those in the science and engineering faculties, amply confirms the need of such training. There is no doubt that many failures in mathematics are due to the inability of candidates to express their ideas in lucid and concise language.

Finally, mention should be made of those sections of the report dealing with the relative capacities of boys and girls for mathematics. There was a decisive consensus of opinion that, while girls excelled in neatness, accuracy, and conscientiousness in carrying out rules and processes, there was a greater general capacity for mathematics among boys, especially as tested by the solution of problems.

The conclusions of the conference on some of the other matters which were considered will be found in the subjoined extracts from the report.

#### FOUNDATIONS OF MATHEMATICAL TEACHING.

A. The foundations on which the ultimate success of school mathematical teaching is based may be summed up as follows:

- (1) The linking up of elementary schools with secondary schools on the one hand, and with technical institutes on the other, and through these with the universities.
- (2) The avoidance in teaching elementary mathematics of a treatment which is merely scientific and demonstrative, or which is merely practical and utilitarian.
- (3) The proper co-ordination of the various elementary branches of mathematics into a unified whole.
- (4) The development of interesting and useful links between the mathematical lessons, and the manual, domestic economy, geography, science, and art lessons with the view of providing both applications of mathematical truths and adequate motives for their development, provided always that mathematical training is never sacrificed to a co-ordination that possesses little or no educational value.
- (5) The sympathetic study of the psychological development of the pupil's powers with the view of adapting at every stage the spirit, method, and matter of the lesson to the experience and capacity of the pupil.

B. The fundamental principles underlying sound mathematical teaching may be briefly summarised as follows:

#### SPIRIT AND METHODS.

To develop individuality and character, the pupil must be trained to rely on himself. He should be trained to think clearly and systematically about number, and to express his conclusions in his own language. All rules should be the expression of what he has been led to discover, and should only be used for the purpose of memorising his results. Rules should be brought to a minimum and clearness of their underlying principles to a maximum. Technical terms should not be used until the thing they designate is known. Symbols and contractions should be introduced only when the need for them is felt and the value of them can be appreciated.

Once introduced, symbols and contractions should be used regularly and accurately. In general, the pupil should throughout be guided to the discovery of definitions, theorems, rules of operation, &c., by induction from a number of favourable particular cases gradually increasing in complexity. Difficulties should be faced and met one at a time. Each step should, as far as possible, arise out of that which goes before and lead up to that which comes after. Frequent revision of past work, both in principles and processes, is essential to real progress. The development of the subject should proceed continuously and gradually from a very predominantly concrete stage in the infants' department to a more abstract stage of treatment in the final school years; concrete illustrations and applications of principles increasing in difficulty should be employed throughout the mathematical course; thus throughout fitting the method and substance to the degree of maturity and experience of the pupil. A knowledge of the main outlines of the historical development of elementary mathematics is of great value to the teacher, as educational experience points to the existence of a broad parallelism between racial and individual development.

Only thought and practice can give the readiness and sureness which constitute skill.

In mathematics, even more than in other subjects, it must be recognised that no superstructure can be stable and enduring unless the foundations are soundly, patiently, and thoroughly laid. Slowness at the outset is amply compensated for by rapidity afterwards.

## MATTER.

Mental arithmetic should be regarded as an integral part of the work; it should, in general, be used as an introduction to new rules; and a due balance should be maintained between the power to compute on paper and without it. Algebra should be introduced as simply generalised arithmetic; this should economise the explanation of general arithmetical principles by providing the pupil with an additional powerful tool for generalisation and memorising. In the problems the need of freshness and variety should be borne in mind. Simple equations should be taken at an early stage in the course.

Visualisation, or other means of concrete realisation, of the circumstances of problems should receive careful attention. As much of our arithmetic as is arbitrary and conventional should be shown to be so. Geometry and arithmetic should be brought into close co-ordination in mensuration, &c. Pupils should be systematically trained to make rough estimates of the answers to be obtained, and should, from time to time, be required to explain the steps by which their estimates were arrived at; they should be trained to recognise cases in which the correctness of their answer admits of easy proof; in other cases they should be accustomed to make use of some small test which establishes the probability, though not the certainty, that their answer is correct.

The lessons should provide occasional short intervals of oral, and, with older children, of written, practice in rapid calculation. The way for "problems" should be prepared by accustoming the children from the first to associate their arithmetical operations with those incidents and needs of their everyday life which fall within their comprehension and arouse their interest.

Only that extent of syllabus should be attempted which the pupil can (i) thoroughly understand; (ii) learn to apply with automatic dexterity. In respect of both the elements here distinguished, his study of arithmetic should become for him a type of what the mastery of a subject implies.

C. The character of the relation between the two subjects may be expressible by the statement that one of them is *instrumental* to the other. This is the relation, for example, between history and geography in some secondary schools, where the latter subject has the status of a mere handmaid to the former. Under these conditions a boy will study the geography of the Iberian Peninsula, not in the course of development of a purely geographical argument, but merely in order to understand the details of the struggle between Wellington and Napoleon's generals. This is almost precisely the conception of the relation between science and mathematics which we desire to advocate.

The presence of an interesting practical problem is a *motive* for these little mathematical enterprises, of which the class readily feels the force, while its obvious suitability for the particular purpose in view makes the procedure adopted in each case seem natural and easy. It is at least doubtful whether either of these statements can be made with truth when the topics in question are taught as it were *in vacuo* without reference to the requirements of any practical situation.

The fundamental arithmetical notations and processes should all be regarded as instruments fashioned by the class, under the guidance of the teacher, to deal with definite problems of a more or less systematic character.

To give a psychological justification for this method, little more need be done than to repeat what has been already said. The desire to find a means of dealing with a problem which presents real intellectual or practical

interest is a motive to investigation that appeals successfully to the boy or the girl who would give a very unenthusiastic response to an invitation to pursue mathematical truth for its own sake. The disinterested love of mathematical truth—as distinguished from a liking for the mechanical business of "doing sums," which is common enough—is a phenomenon which rarely makes a definite appearance until after the elementary-school age. Since all the mathematics that we need practically concern ourselves with consists (whether obviously or not) of really "pure" mathematics applied to the solution of some empirical problem, we are justified in deciding that our children shall elaborate their mathematical machinery in connection with attempts to solve problems of the concrete and practical character which appeals so strongly to the young.

(a) The problems should generally be interesting, not only intellectually, but also practically—that is, their solution should usually involve, besides the activity of thought, activity of a manipulative kind such as is afforded by operations of measuring, drawing, modelling, and the like.

(b) They must have sufficient continuity of interest and width of range to make it possible to systematise the methods based upon them into a complete *technique*.

(c) They must be of such a character as to make the evolution of this *technique* a rational process throughout.

It is natural to turn to what is commonly called mensuration, and to elementary science, for problems that fulfil the required conditions. The questions whether and how far in the present state of teaching subjects within the purview of domestic economy should be substituted for science in the case of girls are interesting problems demanding experimental solution. Meanwhile, for the purpose of illustrating the principles here in question, we append a syllabus, in which an attempt has been made to indicate the details of *one out of innumerable possible solutions of certain important elements of the problem before us*.

## D. THE VARIOUS ASPECTS OF ARITHMETICAL WORK AND THEIR RELATIVE IMPORTANCE.

(1) Whilst the highest importance should be attached to the systematic and intelligent training of the mental faculties of the pupil, in accordance with their stage of development, there is also the important, though subordinate, task to be performed by the pupil of gaining such familiarity with the knowledge already acquired that it is always ready for use. He must gradually memorise, not only his multiplication table, but certain other facts and results, which subsequently will save time and labour and enable him also to concentrate undivided attention upon the solution of difficulties.

This store of memorised work should increase gradually but surely, and particular attention should be paid to building it up, step by step, upon knowledge previously acquired.

(2) In estimating the work of the pupil, the following points are of great importance, and each should receive due attention:

(a) Knowledge of underlying principles.

(b) Knowledge of methods on which depends brevity.

(c) Logical expression of the argument—perspicuity of arrangement of work.

(d) Accuracy of the answer.

(e) Rapidity of working aided by memory.

*How to be Healthy.* 64 pp. (McDougall,) 5d.—The very simple and interesting health-talks contained in this little book are, of their kind, all that could be desired for young people. The book is nicely illustrated.



## PERSONAL PARAGRAPHS.

**O**N July 10th, at High Barnet, died the Rev. George Stott, fellow of Worcester College, Oxford. He was a scholar of that college from 1833 to 1839, and was then elected to a fellowship, which he held for seventy-two years!

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MISS STANCOMB WILLS, an adopted daughter of the late Lord Winterstoke, has presented the magnificent sum of £10,000 to the governors of Bristol Grammar School, who will probably utilise it in building a science and art wing.

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At Marlborough College, a memorial to the late Mr. A. H. Beesly, consisting of a fine library of books and a framed photograph of Mr. Beesly, was recently formally handed over to the school by Mr. F. C. Mackarness.

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THE first Galton professor of eugenics in the University of London is, not unnaturally, Prof. Karl Pearson, F.R.S. Since 1896 he has held the chair of applied mathematics and mechanics at University College, London. He has supervised the biometric laboratory at University College, and the Francis Galton Laboratory for National Eugenics, and has written much on heredity and allied subjects.

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THE name of Mr. H. G. Dakyns first became known to me in 1892, through his translation of Xenophon, published by Messrs. Macmillan. It was to have been completed in four volumes, but has not yet been all published. He was for more than a quarter of a century a master at Clifton College, and died recently at Haslemere. He was educated at Rugby and at Trinity College, Cambridge, and in 1860 became tutor to the sons of the poet Tennyson, and in this capacity was much valued. Among his intimate friends at Clifton were John Addington Symonds, Henry Sidgwick, and T. E. Brown. He was a lovable man, and of a sweet and unobtrusive character. An intimate notice of him is given in the *Athenaeum* of July 8th.

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DR. ROBERT PETSCH, associate professor in the University of Heidelberg, has been elected to the chair of German in the University of Liverpool, vacant through the resignation of Prof. Kuno Meyer. Since 1893 he has devoted himself to the study and teaching of the German language and literature, and is distinguished both as lecturer and teacher.

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THE new master of Marlborough College, in succession to Rev. Frank Fletcher, is the Rev. St. John Basil Wynne-Wilson, headmaster of Haileybury College. He graduated from St. John's College, Cambridge, in 1890, with a first-class in the classical tripos, and was assistant-master at Rugby, 1899-1905, when he succeeded the present headmaster of Eton at Haileybury.

Is Saul also among the prophets? We had hardly expected to find Mr. Hilaire Belloc among the preceptors. However, this brilliant writer—he who does not know "The Old Road," "Verses and Sonnets," and "The Path to Rome" should make haste to read them—has been appointed head of the English department of the East London College, in the University of London. He was educated at Balliol College, Oxford, and was Liberal member for South Salford, 1906-10. Journalist, novelist, and M.P., he must be a prodigious worker, and certainly not the man to waste the time of a train journey.

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THE REV. H. A. RHODES, for seven years past headmaster of Ardingly College, Sussex, has been elected to the headmastership of Cranleigh School, Surrey, in succession to Mr. C. H. Tyler, resigned. Mr. Rhodes was educated at Lancing College and Christ Church, Oxford, where he played Association football for the 'Varsity. His experience includes a mastership at Bilton Grange, Rugby, and the headmastership for two years of the Preparatory School of Christ's Hospital, Horsham. His task, we understand, will not be easy at Cranleigh, but we wish him success, and if determination counts, he should win.

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ELEMENTARY-SCHOOL teachers and others have lost a friend in Mr. T. A. Organ, one of the standing counsel to the N.U.T., who recently died at the age of fifty-nine. Born in a village in Gloucestershire, he passed through the pupil-teacher course, entered the Cheltenham Training College, and then served under the London School Board. In London he threw himself into social and political work, and did much towards organising and extending the Finsbury and City Teachers' Association, of which he was secretary. While working at school, he kept his terms at Trinity College, Dublin, and after graduating, became a student at the Inner Temple, being called to the Bar in 1894. He was an early advocate in this country of hand and eye training, and himself went through the course at Nääs. As headmaster of the Medburn Street School, he exercised a broadening influence. He was a member of the executive of the N.U.T., was an authority on educational law, an esteemed member of the L.C.C. for nine years, and an energetic Mason.

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RUGBY SCHOOL is to have four new masters in September, Messrs. W. E. Kempson (physics), F. W. Odgers and H. S. Wilson (modern languages), and E. F. Bonhote (mathematics).

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M. JUSSELAND, who recently lectured on Shakespeare before the British Academy, may justly be regarded as a French educator of the English. His comprehensive view of English literature is surpassed by that of few of our own men of letters. His lecture was a brilliant performance, which thoroughly pleased a distinguished audience.

ONLOOKER.

## ORGANISED TECHNICAL EDUCATION.

Is an appendix to the fifth annual report of the British Science Guild, the Technical Education Committee<sup>1</sup> of the Guild publishes a series of recommendations designed to improve the supply and character of the technical education in this country. The recommendations deserve careful study and are here reprinted.

(1) The work of technical education should be organised as a national system. A system of scholarships or bursaries should enable the most promising students to pass from the technical school to the university, or to highly specialised institutions established to promote the scientific and practical study of particular industries. Technical institutions of sufficient standing should be connected with local universities, and others should be assigned work and place in an organic scheme to prevent waste of effort and undesirable competition.

(2) There should be a national advisory board for technical education, and local advisory boards should also be appointed; these should include a certain number of teachers as well as representatives of industry and commerce. Greater appreciation of the value of scientific and technical education to industrial progress may thus be secured. The development of specialised institutions closely connected with local industries is always promoted by the appointment of representatives of the leading manufacturers upon the governing bodies of such institutions.

(3) Courses of study and syllabuses leading to national certificates in technical education should be approved by the National Advisory Board. Such work should be of a more advanced character than that for which local bodies may grant certificates, but a national certificate relating to attainment in the specialised knowledge of the district could be established by the local and national advisory boards acting jointly.

(4) Evening classes provide a valuable means of combining theoretical studies with actual practice—concurrent training in factory and school—and have done much to qualify strong and capable men for positions of responsibility in commerce and in certain industries. An extension of the opportunities for part-time study in the day is, however, greatly to be desired, and the increase of such classes should do much to advance technical education.

(5) There should be in each district a sufficient number of (a) trade preparatory schools for pupils of about twelve to fifteen years of age, such schools to differ from ordinary secondary schools in the large amount of time given to various forms of manual instruction; (b) continuation schools for part-time day pupils and for evening pupils. Both (a) and (b) would be concerned chiefly with the further education of pupils trained in primary schools.

(6) For the comprehensive training required to produce future captains and leaders of industry, whole-time instruction is essential in institutions of advanced type. It is desirable that each institution of this type should add to its curriculum, so far as possible, specialised instruction in a particular subject, or group of subjects, relating to one or more of the principal industries of the district.

(7) The national and municipal expenditure upon education in England in respect of technical, art, evening, and similar schools and classes is about one and a half

million pounds per annum, and the number of students above fifteen years is about half a million, so that, neglecting younger pupils, the annual cost is only about £3 per student. As, however, the chief part of the work of most of the schools, whether day or evening, is elementary or of a continuation-school grade, it cannot be classified as technical education; hence the actual expenditure upon technical education properly so called is only a small amount of the total.

(8) In most parts of the country bursaries or scholarships are provided, by means of which promising pupils in public elementary schools may pass into secondary schools or technical schools, and thence into a technical college or university for more advanced instruction. For work of what may be called a post-graduate standard, however, little provision has been made, though it is of the highest importance. To secure the highest development of industries, highly technical and specialised work must be carried on in suitable institutions by well-qualified students. Increased facilities should therefore be afforded by liberal scholarships or other assistance to enable such students to enter institutions of this type and maintain themselves while following approved courses of study or research.

## HISTORY AND CURRENT EVENTS.

SIGNS are multiplying that "our" constitution is in the near future about to undergo far-reaching modifications. Quite apart from the changes that are proposed in the relations between the Houses of Parliament, changes which, if effected, will go far to facilitate the further revolution, we seem to be entering on a course of development in the relations between the various parts of the Empire that the future historian of Great-Britain-and-Ireland-and-the-Dominions-beyond-the-Seas will call "The Revolution of the Twentieth Century." We advise our readers to study carefully the discussions, and, even more, the resolutions of the Imperial Conference of this year, and to remember that the statesmen there present either are themselves, or are the representatives of, those who command the confidence of their respective Parliaments. In these days of party allegiance, to say nothing of the fact that international politics generally rise above party conflict, what has been decided in the conference will probably be ratified. A *really* Imperial Parliament is coming into existence under our very eyes.

As the unity of the Empire grows and is materialised into new forms, impossible and almost inconceivable until within the last thirty years, what used to be regarded, in the absence of these new developments, as the necessary foundations of Imperial unity will cease to be so important. As Australia is united, though it has five Parliaments, as South Africa and Canada are united, though they similarly give material form to local patriotism, so when the Parliament that meets at Westminster drops its Imperial pretensions and contents itself with being a purely British-Isles Parliament, it will be easy to regard with equanimity a devolution of powers larger than has yet been granted to the several parts of the British Isles. As Scotland is home-ruling in church matters, as Ireland has no rule in such matters, as even Wales has separate laws and aspirations different from those of its English neighbours, so when the Westminster Parliament is no longer the outer bulwark of Imperial unity these constituent parts of the British Isles will be more than "geographical expressions," and will become, in outward form, the nations which they have long been in inner thought.

<sup>1</sup> The members of the Technical Education Committee are as follows: Prof. R. Meldola, F.R.S. (chairman), Dr. G. T. Beilby, F.R.S., Dr. H. T. Bovey, F.R.S., Prof. R. A. Gregory, Sir Alfred Keogh, K.C.B., Prof. A. Liversidge, F.R.S., Sir Philip Magnus, M.P., the Right Hon. Sir William Mather, Prof. Perry, F.R.S., Dr. F. Mollwo Perkin (hon. sec.), Sir Wm. Ramsay, K.C.B., F.R.S., Mr. A. Shadwell, Mrs. W. N. Shaw, Prof. J. Wertheimer, Sir Wm. White, K.C.B., F.R.S.

In all these matters let us think Imperially. We are celebrating this year the Festival of Empire, and in London there is gathered a microcosm of the British world. How varied that world is, how it differs, not only in geographical situation, but in language, race, religion, may be realised when we read that at the Shepherd's Bush Exhibition last June the fifteen hundred and more representatives of many races who are British subjects passed in procession before a statue of the King and paid their homage. "In the procession were Maoris, Hindus, Brahmins (who touched the floor with their foreheads), Somalis, Maltese women, West Africans, Red Indians, and others." Englishmen must learn to realise that they are but one (*perhaps* the most important, but still no more than one) constituent of this vast collection which our fathers have bequeathed to us, gained we scarcely know how, but in various ways, and that if the history of our "lost empire" has anything to teach us, it is that unity can never be attained by uniformity or centralisation. Remember Joseph II. of Austria-Hungary!

"THE General Medical Council, in the exercise of its power, against which there is no appeal, has deprived two men of the right to earn their living as medical practitioners on the ground of having been guilty of 'infamous conduct.'" "The Bishop of London a short time ago excommunicated a man for 'brawling in church,' and the excommunicate having asked pardon of God, the clergy, and the congregation, has been restored to communion." What is the origin of government? What are its sanctions? So asked the *a priori* philosophers of the fifteenth and two following centuries. In these scientific days we ask the easier question, What is the source of these two jurisdictions, that of the General Medical Council and of the Bishop of London? The former can be traced to Parliamentary or Royal authority, delegating to specialists jurisdiction within their (presumed) competence. The latter takes us back in thought to the beginning of our modern civilisation. We are reminded of the Pauline letters to the Corinthian Christians, and the apostle's decision on such matters. And though the matter has since then been complicated with the relations between Church and State, the right of every church to excommunicate offending members and to restore the penitent is still with us.

## ITEMS OF INTEREST.

### GENERAL.

THE fifteenth Oxford Summer Meeting will be held this year from August 3rd to 28th. The inaugural address is to be given on August 3rd, at 8 p.m., by Lord Haldane. The Vice-Chancellor of Oxford University will welcome the students on behalf of the University. The programme of the meeting falls into three sections. The general scheme of lectures illustrates the place and part of Germany in world history, and its contribution to literature, art, science, theology, and philosophy. Special stress will be laid upon the evolution of the constitution of modern Germany since 1815. Among the lecturers in this section will be Prof. Alois Brandl, of Berlin; Prof. Fiedler, of Oxford; Dr. Besser, of Dresden; and Prof. Salomon Reinach, of Paris. Another section will be devoted to social economics; and there will be a conference on August 2nd, over which Lord St. Aldwyn has promised to preside, called to discuss the German solution of various economic and social problems, such as national insurance, poor relief, and housing. There is also a special section designed primarily for foreign teachers, including lecture

classes and individual teaching in the English language and phonetics. A special class for instruction in field mapping will be held, and other classes in educational psychology and the German language. Mr. William Poel is organising a special performance of Coleridge's translation of Schiller's "Death of Wallenstein" at the New Theatre at Oxford. Mr. Frank Benson will give a special performance of "The Tempest" in the Memorial Theatre at Stratford, and there will be special performances of the old German puppet play, "The Prodigious and Lamentable History of Dr. Johannes Faustus," to which Mr. Wicksteed will give an introductory lecture.

For the last six months a Festival of Empire Girls' Choir has been actively at work. From nearly one hundred secondary schools for girls, 1,200 selected singers gave on July 12th a first concert at the Crystal Palace. Lovers of music are indebted to the Festival of Empire for helping to start such a choir. Much good work is quietly done in many schools, both in choral and other departments of music; and those who have begun part-singing in youth are later the backbone of many of our large choirs. The idea of uniting to give an Empire concert was excellent, and stimulating both to performers and audience. The following was the programme:

### GOD SAVE THE KING.

Unison Chorus ... "What can I do for England" ..... *J. H. Maunder.*  
 Duet ..... "O lovely Peace" ..... *Handel.*  
 Two-part Chorus ... "Out in the Sunshine" ..... *Pinsuti.*  
 Unison Song ... "My own Country" ... *J. Cliffe Forrester.*  
 Two-part Chorus ... "Oh! Happy the Heart of a Child" ..... *S. P. Waddington.*  
 Song ..... "On Wings of Song" ..... *Mendelssohn.*  
 Two-part Chorus ... "The Stately Homes of England" ..... *Charles Hoby.*  
 Song ..... "Whither?" ..... *Schubert.*  
 Unison Song ..... "Lullaby" ... *Granville Humphreys.*  
 Two-part Song ... "Sing a light and cheerful lay" ..... *E. Nicol.*  
 Two-part Song ..... "Joyful Echoes" ..... *L. Streabbog.*  
 Three-part Chorus ... "Hurrah for Merry England" ..... *Hugo Pierson.*

The performance was distinctly good and reflected great credit on the conductor, Mr. S. Filmer Rook. The renderings we preferred were those of "O lovely Peace," "Out in the Sunshine," "Lullaby," and "Hurrah for Merry England"; but the remaining items were all well given, despite very tropical and trying conditions.

DEO DANTE DEDI ("Of thine own have I given thee") is the motto of Charterhouse School, which celebrated its tercentenary on July 8th. The actual date of foundation is December 12th, 1611, but such a function in the country is better carried out in the summer than in the winter, and, moreover, Dr. Rendall, the present headmaster, will have dropped the reins of office before December. One of the oldest and most famous of English public schools, Charterhouse has good reason to be proud of its remarkable development, since its transference to Godalming in 1872, under the guiding hand of its energetic headmaster, Dr. Haig Brown. The Charterhouse of the "Brothers" still stands in Charterhouse Square in the City, but the larger part of the site occupied by the school was sold to the Merchant Taylors.

MORE than 500 guests, almost entirely old Charterhouse boys, went to the splendidly situated foundation, which looks down on Godalming and the Wey. The day began with a commemoration service in the chapel, at which the Bishop of Lewes, an old Carthusian, gave an address. Then followed cricket in the summer sun of 1911. Before

tea the Lord Chief Justice presented prizes to members of the O.T.C., and after tea a special art exhibition, largely contributed by Carthusian artists, was visited. The commemoration dinner, at which there was a distinguished company of guests, was presided over by Dr. Rendall. Then followed an open-air performance of "Love's Labour's Lost" at Undergreen. Finally, after 10 o'clock, came the "Masque of Charterhouse," a triumph for Mr. E. D. Rendall, the composer, and Mr. Alan Mackinnon, the producer. The proceedings were graced by the receipt of a telegram from the King, conveying his thanks for a loyal message sent by the headmaster. *Floreat aeternum Carthusiana domus.*

THE following resolution has been carried unanimously by the executive committee of the Association of Headmistresses: "The executive committee of the Headmistresses' Association receives with gratification the White Paper issued by the Board of Education containing suggestions for the constitution of a Teachers' Council for England and Wales, and the President's minute directing that steps be taken as soon as possible for obtaining an Order in Council accordingly. As the statutory work of this council will be the establishment of a Teachers' Register under the conditions laid down in Clause 16 of the Act of 1907, its formation will carry into effect a policy which this association has continuously advocated since 1879. The committee is glad to see that it is proposed to include in the council on equal terms all branches of the teaching profession, including university teachers. The committee also observes with sincere and cordial appreciation the proposal, in Article 56 of the suggestions, for a provision designed to secure the presence of an adequate number of women on the council. On the other hand, the committee ventures to hope that the problem as to the constitution of the council after 1914 should not be left over for settlement *de novo* by the then Board of Education. With a view to future continuity and the establishment of confidence in the council from the first, the committee would rejoice to see it laid down as one of the duties of the Teachers' Council to make regulations for the constitution of its successor."

THE "Suggestions to Examiners in Geometry" drawn up by the committee of the Mathematical Association (see p. 320) have their origin in the difficulties which have arisen through the blending of theoretical and practical geometry which is characteristic of modern methods of teaching the subject. The absence of any final authority has permitted teachers and examiners to vary the proportions of the two ingredients according to their personal predilections, with consequences to candidates which are often rather unfortunate. There is no doubt that the majority of examiners try, so far as possible, to make allowance for the variations in methods of teaching; but only those who have taken part in examinations in which the number of entries runs into hundreds or thousands can have any adequate conception of the difficulty under present conditions of dealing out justice to all classes of candidates.

THE suggestions deal with somewhat minor points, but the establishment of a clear understanding as to what an examination in geometry means would go far to clear away the ambiguities to which the committee directs attention. If a clear distinction were established between theoretical and practical work, and it were agreed that geometry without qualification was to mean theoretical, that is, deductive geometry, then it would be the duty of teachers to impress upon their pupils that constructions should always be adequately described and a theoretical proof

given. The choice of instruments would be left to the discretion of the candidate, being regulated by the presence or absence of definite measurements in the data. Unproved constructions find their proper place in examinations on geometrical drawing. With respect to Suggestions II. and III., it need only be said that it is difficult to imagine any properly qualified examiner acting otherwise than as suggested.

THE nature of the alterations in the conduct of the Board of Education Art examinations and National Competitions, to which reference was made in these columns some time ago, is foreshadowed in a circular which has just been issued to local education authorities and schools of art. The changes indicated are of a far-reaching and, in some cases, decidedly drastic character; they may be briefly summarised as follows: The existing minute subdivisions of art subjects will be abolished. Elementary Art examinations will be discontinued, and in their place will be established examinations of a more comprehensive character adapted to the need of students who have reached a fairly advanced level in their studies. The present conditions governing the award of art teachers' and art masters' certificates will terminate in 1912, and new regulations will be issued with the object of securing, in addition to high artistic attainments, the advantages of a general education and of a suitable course of professional training at some institution recognised by the Board for the purpose. Reform of the National Competition under conditions to be recommended by a committee of experienced art masters and others in consultation with the Board of Education. The readjustment of scholarships and exhibitions. This will involve the discontinuance of the present local free studentships, after which they may be continued under revised conditions. An influential committee has been appointed to assist the Board of Education in carrying out these much needed reforms, and it is gratifying to note, as evidence that the teachers' view will receive due consideration, that the list of names includes the president of the Society of Art Masters, as well as the headmasters of the Liverpool and Camberwell Schools of Art.

PROF. RIPPMAUN proposes to deliver in the autumn a short course of lectures for modern language teachers. There will be five lectures on October 7th and 21st, November 4th and 18th, and December 2nd, on phonetics, in which the sounds of English will be made the basis, French and German sounds being compared and contrasted; and five lectures on the same days dealing with methods of modern language teaching. It is intended that the lectures shall be of direct use to teachers in their daily work, and there will be opportunities for the discussion of difficulties. The lectures will be given at Queen's College, 43, Harley Street, W. All communications about these lectures should be addressed to Prof. Rippmann, 45, Ladbroke Grove, London, W.

EVIDENCE of the value attached by teachers to the school journey as a means of teaching geography accumulates. Messrs. J. M. Dent and Sons have issued the first of the "School Journey" series of note-books, under the general editorship of Dr. H. Piggott, headmaster of the Hornsey County School. This relates to "A Visit to Cambridge," and is written by Mr. R. J. Finch, senior geography master of the Hornsey County School, who described the school journey to Winchester in our issue for August, 1910. There are maps to show the importance of Cambridge in relation to its situation on the edge of the chalk, on the southern corner of the ancient fenland with the ancient

forest to the east and south, as well as reproductions of essential parts of the Ordnance Survey maps to show the district and the town. The letterpress explains succinctly "Why we visit Cambridge," how to reach the town, how the town is geographically significant, what to see in Cambridge, and in this latter connection there are several beautiful illustrations of notable architectural features. Not the least interesting illustration is the frontispiece, which consists of a plan of the town made by order of Archbishop Parker in 1574. We have seen other descriptions of school journeys duplicated by the hectograph; these were good; but we welcome the new departure signalled by this admirable little book of some thirty pages.

THE Education Bill just introduced into the House of Commons is understood to express, in legislative form, the agreement arrived at by the Educational Settlement Committee. The first and most significant clause provides that a council school shall be accessible to all children of school age. To this end the transfer of existing non-provided schools is to be facilitated, on terms agreed upon by the local authority and the trustees, in districts where accommodation in a council school is not already accessible. Provision is made for safeguarding the rights of the various parties involved, and in particular of trustees of transferred schools, of teachers in schools that are transferred or closed, of teachers in provided schools, and of parents who desire that their children shall receive religious instruction of a special kind. Religious instruction, the general nature of which is indicated, is to be given in all provided schools, subject to the protection of the conscience clause; and facilities are to be given for other forms of religious instruction where it is desired. All children are to attend school whilst this instruction is being given, but for children who are withdrawn therefrom concurrent secular instruction is to be provided. We believe most teachers of young children will agree with the view implied in clause 11, that the time devoted to religious instruction may be reduced in the case of children below the third standard. We are glad to note also that religious instruction committees are to be set up by the local authorities, and that to these committees, which must include "persons of experience in the religious education of the young," all questions relating to the religious instruction are to stand referred. Finally, we approve absolutely of the provision whereby all students in training colleges are to have adequate opportunities of preparing themselves for this important department of their work, because it appears to us irrational to decree that a certain kind of instruction shall be given, without taking steps to ensure that it shall be given intelligently. The Bill is an honest and fair-minded attempt to settle a wearisome controversy, and the vast majority of teachers will agree with us when we give it our blessing.

IN July, 1909, Mr. Puchleitner, a schoolmaster of Prague, visited a number of the schools of the London County Council Education Committee, and in a recent issue of the *Oesterreichische Rundschau* he gives the impressions he carried away of some English methods of education. Speaking generally, he says in Germany and Austria people have rather a poor opinion of the English school system. Mr. Puchleitner's article should go a long way to dispel this idea, for he is most complimentary in his estimate of the London teachers and their pupils. Nothing in English schools he thinks is compulsory. "The teacher does not compel a pupil to do anything, and, in the same way, the headmaster does not compel the teacher. Moreover, what is more extraordinary to us, the inspector does not force the headmaster in any way."

"Greater freedom," he remarks, "here only creates greater responsibility for the individual. And that is the secret—freedom does not make for lack of restraint or indolence, but for independence, the consciousness of responsibility, and enjoyment of the task." In another place our amiable critic says: "I was much struck by the marked attention which the boys and girls paid to the lessons without that strictness with which we are accustomed, because of the playfulness and inattention of our children—things which, to my astonishment, I missed in the classes I visited. Everywhere I found the most marked attention. When, for example, the children changed places, formed up in the hall or formed groups, a simple command of the teacher sufficed. I never found that it was necessary for the order to be repeated." London teachers will value these words of praise.

THE current issue of *School Science and Mathematics* (vol. xi., no. 6) contains the third and final portion of the report of the National Committee, appointed in 1909 by the National Education Association (America), on the Geometry Syllabus. The previous portions of the report have appeared in nos. 4 and 5 of the same publication. It contains a historical introduction by Florian Cajori; a section on logical considerations, including axioms, definitions, new terms and symbols, treatment of limits and incommensurables, &c.; a section on the grading and distribution of exercises, algebraic and geometric types, loci problems, and the correlation with other subjects, such as arithmetic and trigonometry; a section on types of courses for special classes; and, finally, the syllabus itself, exhibiting by means of distinctive forms of type the varying degrees of emphasis which may properly be attached to the different theorems. This report should be read by all teachers of the subject. The same number (no. 6) gives an interesting article on a secondary-school mathematics club; also a description of Steele and Grant's balance, designed for weighing to one ten-thousandth part of a milligram, which has been used by Sir W. Ramsay to determine the loss of weight of radio-active substances.

THE Finance, Commerce, and Shipping Supplement of *The Times* for July 7th last contains two excellent maps of the distribution of rubber growing, and many articles on the industry. There are pictures of the tree-tapping processes and accounts of the work in the different districts, and sufficient information to enable the reader to estimate the relative importance of the different localities in which rubber is produced. The whole supplement is devoted to rubber in connection with the Rubber Exhibition at the Agricultural Hall in Islington. Teachers of geography should procure and file a copy of this supplement.

A VERY complete "Catalogue of Literature and Reference Books," including a general summary of all catalogues issued by them, has been received from Messrs. W. and G. Foyle, of Charing Cross Road, London, W.C. Messrs. Foyle are in a position to supply nearly all the books included in their catalogue at about half the published price; and they allow a discount of 3d. in the shilling on new books, other than those published at net prices, when cash accompanies the order.

#### SCOTTISH.

THE annual meeting of the School Boards Association was held this year in Edinburgh. The Rev. Dr. Smith, Partick, presided over a large attendance, which was thoroughly representative of the whole country. In his opening address the chairman said that in almost every parish in the country the rate was showing an upward

tendency. The minutes dealing with the teachers' superannuation scheme and the reduction in the size of classes would, if accepted by Parliament, be responsible for an addition of 3d. or 4d. to every school rate. He was convinced that the steadily increasing cost of education was directly due to the inexorable demands of the Department. School Boards had all along been too submissive to the dictates of the central authority, and the time had come when they must assert themselves in the interests of the ratepayers. They must employ every means of enlightening the public as to the real cause of the increased cost of education, and keep hammering at the door of the Exchequer until relief was obtained.

THE report of the director of studies to the Glasgow Provincial Committee for the training of teachers directs attention to the continued decrease in the number of students taking university classes. In 1908-9 the number of those students was 555, in 1909-10 it was 455, while in the present session it was only 328. The decrease was most marked in the case of women students. Two years ago 313 women students in training were in attendance at university classes, as against 159 this year. Still more striking was the fact that the number of such first-year women students was at present only 29, as compared with 108 in 1908-9. Against this reduction has to be set an increase in the number of graduates coming forward for a year of professional training. The total number of students in training is 4,596, distributed as follows: 1,159 for the general certificate; 13 for the higher certificate for secondary-school teachers; 214 for the special certificate for subjects like woodwork, cookery, drawing, &c.; and 3,210 for further training in the various subjects of the elementary-school curriculum.

A CONFERENCE of representatives of the general councils of the four Scottish universities was held in the Station Hotel, Perth, to consider the regulations for entrance bursaries in art and the proposed inclusive fee for the various faculties. With regard to the former, it was agreed that the number of subjects of examination should be four; that of these, English, one foreign language, and mathematics or science should be compulsory; and that the marks should be the same for all subjects. With regard to the system of inclusive fees, while the conference was opposed to its adoption, it was agreed, in the event of its being imposed: (1) that graduating students should have the option of paying for individual classes, as at present; (2) that the inclusive fee in the arts faculty should be £30 for the ordinary degree and £40 for the honours degree; (3) that with regard to the other faculties the conference had not sufficient data before it to enable it to suggest the amount of the inclusive fee. There was a strong and unanimous feeling among the members of the conference that the obtaining of additional grants should not be made the occasion, as was proposed by some of the university courts, of increasing the cost of graduation to the students.

THE long-expected circular defining the conditions for the new group leaving certificate has at length been issued. Generally speaking, these may be said to be framed on thoroughly sound educational lines, and are likely to be regarded by teachers with entire satisfaction. The arrangements for the post-intermediate courses and the award of the leaving certificate follow pretty closely the lines of the present intermediate course. That is to say, the certificate is no longer to be granted on the strength of passes in individual subjects that may or may not have any relation, but on the successful completion of an

approved and well-balanced course of study extending over at least two years. As in the intermediate certificate, the judgment of the teacher is to be a factor in assessing the award of the certificate, and weakness in one subject may to some extent be made up for by excellence in another. No hard and fast curriculum is prescribed, but it is suggested that for a majority of schools and pupils the following course will be found most suitable: English, one foreign language, mathematics or science, and history or geography or music or drawing or domestic science. Pupils will be expected to reach the higher grade standard in at least three subjects and the lower standard in one or more.

In reply to a question in the House of Commons, the Lord Advocate stated that in view of the shrinkage in the Education (Scotland) Fund, the Education Department had reluctantly come to the conclusion that it would be inexpedient to proceed further this session with the superannuation scheme for teachers and with the minute reducing the size of classes. This announcement was received by members on both sides of the House with indignant protests. Sir Henry Craik, who led the attack on the Government, described the decision, in so far as it concerned the teachers' superannuation, as "a discreditable act of administration," and Mr. Scott Dickson declared that the action of the Government was tantamount to suspending the operations of an Act of Parliament. Speaker after speaker rose to protest against the postponement of the pension scheme; and the only voice heard in defence of the Government's action was that of the Lord Advocate, who expressed his personal regret at the postponement, and assured the members that the scheme would in all likelihood be proceeded with early next session.

THE action of the Government in delaying the introduction of the pension scheme has moved Scottish teachers to an unprecedented degree. Members of Parliament have been bombarded with letters calling upon them to demand the immediate production of the scheme. They in turn have pestered the Lord Advocate with questions on the subject, and have sought and made opportunities for bringing up afresh the whole question in the House. In consequence of the ferment that was raised, the Chancellor of the Exchequer, who is supposed to be the villain of the piece, asked a deputation of Scottish teachers to meet him in his room in the House of Commons. The interview was in private, but the members of the deputation who were present expressed themselves as quite satisfied with the Chancellor's promise that the scheme would be produced either this session or at the latest the first thing next session.

THE strong feeling aroused among Scottish teachers by the Government's postponement of the superannuation scheme took practical shape in a public meeting held under the auspices of the Educational Institute in the Christian Institute, Glasgow. The meeting is said by the public Press to have been the largest and most representative educational meeting ever held in Glasgow. The large hall was packed to the door, and hundreds were unable to gain admission. Mr. James Beattie, president of the Educational Institute, occupied the chair. Sir Henry Craik, who was unable to be present, wrote saying that the action of the Government undermined the reliance that could be placed on an Act of Parliament. The provisions of the Act of 1908 as regards superannuation were perfectly clear and distinct, and left no option to the Government but to produce the scheme or to be guilty of

breach of faith with Scottish teachers. Mr. Scott Dickson, M.P., in the course of an able address, said that he could not understand what justification could be brought forward to allow of statute-makers becoming statute-breakers. Mr. McCallum Scott, M.P., said that the present position was due to the shrinkage in the Education Fund. The shrinkage in the fund was due to imperial legislation, and therefore it was the bounden duty of the Treasury to make good the deficit. Resolutions protesting against the postponement of the scheme and demanding increased grants from the Treasury were afterwards passed.

THE position of the teacher in small secondary schools is becoming increasingly difficult. The requirements of the Department in regard to buildings, equipment, and staffing in such schools have gone up enormously, although the State contributions in aid thereof have remained practically unchanged. Consequently, the demands upon the local ratepayers are becoming every year more burdensome. This is frequently made a rock of offence against the teacher, who is regarded as leagued with the central authority in squandering the hard-won earnings of the citizens. A case in point recently occurred in Castle Douglas, where a new secondary school has been erected with consequent increase to the rates. At the last meeting of the School Board the need for an additional teacher to meet the requirements of the Department was brought up. One of the members protested against any new appointment. The staff was already enormous—eighteen teachers for 500 scholars. He could not make out, he said, how each teacher was employed. This point of view is fairly typical of the narrow parochial administrator, who would measure out education by the yard stick. Every problem in school administration resolves itself for him into one of the four simple rules. He simply cannot be got to understand the permutations and combinations that have to be reckoned with in secondary-school staffing.

#### IRISH.

THE Intermediate Rules and Programme for 1912, which appeared at last towards the middle of June instead of at Easter, contains several features showing the influence of the new chairman of the Commissioners and also of the inspectors. After several years of struggle the Board has reverted to its old practice of allowing a student to pass more than once in the same grade. A capitation grant will not, however, be paid twice on the same student in the same grade unless he merely passes the first time, and the second time passes with honours, and then the Board will pay in the second year the excess of the grant payable for a pass with honours over that payable for a pass only. This is a suggestion made long since by the teachers' bodies. The conditions of passing in the higher grades are modified by allowing Greek or Latin to count as equal to any two of the following: French, German, Irish; and girls must pass in the preparatory and junior grades both in arithmetic and algebra and in geometry. The maximum value of the senior grade exhibitions is reduced from £40 to £30. Special papers for prizes and exhibitions are abolished, and the modern language group is altered, and in its place appears a language group containing the four languages: French, German, Irish, Latin, any two of which may be taken as honour subjects. In the middle and senior grades in the mathematical group it is necessary to pass with honours in (a) arithmetic and algebra, (b) geometry, and (c) trigonometry.

THE change which is perhaps the most striking is the remodelling of the English courses throughout all the

grades, and the abolition of history and geography as a pass subject. In all the grades English is divided into five sections: (i) English composition; (ii) English literature; (iii) outlines of history; (iv) elements of geography; and (v) private reading. There are no books recommended for English composition. The literature is on the same lines as hitherto. The history begins in the preparatory grade with William the Conqueror and not Julius Caesar, and in the higher grades extends to European countries. The geography is frankly political, and physical geography disappears. The special course proposed by the Department for the third and fourth years by no means fills the gap, as the preparatory and junior grades will have no physical geography at all, and in the middle and senior grades the Department's course is not compulsory. In private reading, Scott is prescribed for the preparatory and junior grades, Dickens for the middle, and Thackeray for the senior. These alterations, especially the last two, will no doubt be much criticised. It should be added that the history and historical geography of the English course, with some extensions, form also by themselves a separate honour subject. Finally, set books reappear, after a year's absence, in the middle grade, and the standard authors, on the other hand, disappear from the senior.

LORD IVEAGH has given to the governing body of University College, Dublin, two plots of his property, about half an acre in extent, adjoining the site of the late Royal University in Earlsfort Terrace, which is now the site of University College, for the purpose of facilitating the college in the erection of its new buildings.

THE Trinity College King's letter recently received, and making certain alterations in the constitution of the body corporate of the college, is being opposed by the Rev. T. T. Gray and Mr. G. L. Cathcart, two of the senior fellows, who have served a writ on the provost, fellows, and scholars of the college to restrain them from accepting the letter and from acting on it. The trial cannot come on until next term, and meantime the college is going on with the changes, some of which have been brought into operation before the long vacation.

TRINITY COLLEGE is proposing to establish a new degree, viz., an Sc.B., to be given for research and advanced study in any important branch of mathematical, experimental, natural, or applied science. This degree will be open to all graduates of the University of Dublin who have obtained a moderatorship in mathematics or science, and to graduates of other universities who have obtained an equivalent degree, in both cases if they spend a year in the University of Dublin working at their special subject. Other students may qualify for entry upon the course by passing that part of the Moderatorship examination which embraces their special subjects. At the end of the year there will be an examination.

THE Classical Association of Ireland is raising a fund with the object of developing and improving the methods of teaching classics, and in particular of promoting in schools archaeological aids to teaching. Already a considerable sum has been contributed, and it is proposed to apply it in various ways. Among others, it is proposed to encourage the use of the lantern in subjects connected with the life and literature of the Greeks and Romans; also to form loan collections of Greek and Roman coins, pottery, replicas, &c., and to encourage the creation of classical museums in schools. It also proposes to carry on, and if possible to extend, its scheme of offering prizes for excellence in classics at the Intermediate examinations.



## WELSH.

THE opening of the splendid new buildings of the University College of North Wales, Bangor, by his Majesty the King, has long been looked forward to, and is now happily and most successfully accomplished. As should be the case, and as so often is not achieved, the new buildings are opened free of debt. The King is Chancellor of the University of Wales, as the late King was, whilst he was Prince of Wales, and the Bangor College is a constituent college in that university. The site was a munificent gift of the city of Bangor. The Drapers' Company gave £15,000 to defray the cost of the library and the museum, and Sir John Prichard Jones gave no less than £17,000 to provide a great hall for the college. The total cost of the buildings erected will amount to £112,000. The progress of the college may be indicated by stating that in 1884 the number of students was 58, and in the present session is about 350.

THE opening of the college was a brilliant ceremony, and amongst those who attended were prominent members of both political parties; e.g., Mr. A. J. Balfour, Mr. Lloyd George, the Master of Elibank, and Lord Hugh Cecil—all joining in the warmest congratulations to the authorities of the Bangor College. The King, in replying to the address, said: "I have not forgotten the occasion of my previous visit in 1902 to assume the office of Chancellor of the University in succession to my dear father, and I well remember how, four years ago, King Edward came to lay the foundation stone of the fine buildings which to-day stand forth on this hillside as a worthy realisation of our joint hopes. No happier duty could fall to me than that of completing an enterprise at the inception of which my beloved father presided in person, and over the progress of which he watched with so much interest. These buildings will give proper scope for the work of the college. They will be worthy of the love of learning and of culture for which the Welsh people are renowned. They will be a memorial of that public spirit which has prompted all classes to unite in contributing, according to their means, to the cost of the work. I am pleased to declare the buildings open, and to promise you every encouragement in the task of carrying to a final completion the scheme which has already gained so large a measure of fruition. I have now pleasure in declaring the new buildings of the University College of North Wales open."

THE foundation stones of the Welsh National Library at Aberystwyth have now been laid by the King and the Queen. The announcement has been made that the proposals of the new Copyright Act will include the compulsory addition of all new works claimed by the library. The Royal Charter founding the library was issued in March, 1907, and the objects thus recognised include the collection, preservation, and maintenance of MSS., printed books, periodicals, &c., composed in Welsh or any other Celtic language, or relating to the history and literature of the Welsh and other Celtic peoples, as well as all literary works which may help to attain the purposes for which the university and other educational institutions in Wales were created. In January, 1909, the library was opened in its temporary home in the Old Assembly Rooms, Aberystwyth. Amongst the collections already placed there are the following: The Celynog Collection made by Mr. Richard Williams, of Newtown, and presented by Mr. David Davies, M.P., and the library of the late Rev. Owen Jones, of Llansantffraid. These, and other books, were handed over by the University College of Wales, Aberystwyth. Sir John Williams presented his fine collection, including the Welsh portion of the Sherburn Castle

library, the Hengwrt and Peniarth MSS., and the library of John Parry. The Hengwrt and Peniarth Collection include over 500 manuscripts in Welsh, Cornish, English, and Latin. They were collected chiefly by Robert Vaughan, of Hengwrt (1502-1666).

AMONGST these MSS. are the greatest treasures of Wales—the oldest MSS. of the Laws of Wales in Latin and Welsh; the earliest versions of the Mabinogion, as well as of the Arthurian and other romances; the oldest and only perfect copy of the Holy Grail; an early translation of a portion of the Gospel of Matthew; an immense body of poetry, ranging from the twelfth to the eighteenth century; historical works like *Brut y Tywysogion*, and a large number of mediæval theological works. Here also is the most extensive collection of pedigrees, and by far the oldest manuscripts, with authentic contemporary accounts and references to sources of information. The "Black Book of Carmarthen," the oldest MS. in the Welsh language, is written on vellum in several hands of the twelfth and thirteenth centuries, 1150-1250, and its contents—a compound of mythology, religion, history and literature—are of the greatest interest and importance to students. The library is unique in its collection of Welsh Bibles, prayer-books, and hymnals; in great writers connected with Wales; in specimens from local presses, ballads, early printed copies of the Arthurian Romances, the works of Robert Recorde, of Tenby, &c.

IN 1897 Lord Rendel purchased about fourteen acres of land at Aberystwyth, on the slope of a hill overlooking the Cardigan Bay, as the site of the Welsh National Library, and it is there that the new buildings are being erected. The total cost is estimated at from £150,000 to £200,000. Amongst larger contributions from wealthier bodies or individuals, it is noticeable, as always in Welsh educational projects, a very large proportionate sum comes from the poorer classes. Thus the quarrymen of Festiniog have contributed to the building fund, in spite of the local difficulties they have experienced in recent years, the sum of over £70. The elementary-school teachers of Cardiganshire have nobly promised the sum of £100.

THE Welsh Summer School holds its ninth session from July 31st to August 12th at Llangollen. The school is this year divided into four sections, and it is intended to make its work, when fully taken up, a four years' course. The subjects are comprehensive, and are as follows: Welsh grammar and literature; the history of education in Wales; Roman remains in Wales; history of Wales, 1282-1415; Welsh grammar and composition; Welsh lyrical poetry; the principles of language teaching; the revival of Welsh poetry in the nineteenth century; the history of Wales from 1485 to 1730, and, again, from 1603 to 1900, the revival of the Eisteddfod; on the translation of Welsh verse into English; on Welsh periodical literature; on the songs of Wales; and on school libraries.

THE first Welsh Juvenile Advisory Committee has been established at Pontypridd, under the joint regulations of the Board of Trade and the Board of Education. The ground of the establishment of such a committee is to provide for some supervision over boys and girls after they become exempt from compulsory attendance at school. They are intended to combine provisions for arranging for suitable employment for youths and young women, and for instilling into the minds of both parents and children the necessity for continued study after leaving school. Arrangements are to be made for ensuring suitable vocations for children according to their mental and physical qualifications.

## AN OFFICIAL CONDEMNATION OF ENGLISH ELEMENTARY EDUCATION.

*What is and what might be, a Study of Education in General and of Elementary Education in Particular.* By Edmond Holmes. (Constable.) 4s. 6d. net.

MR. HOLMES has given us what we regard as in some respects a remarkable book. In the first place, to say that it is merely "well written" would be to do it less than justice. It is a work of genuine literary merit. Indeed, we must go back to Matthew Arnold for a like instance of an educational official whose writings on education it is a pleasure to read because of their breadth of view and distinction of style. To this high praise we must, however, make one exception. As an ex-inspector, Mr. Holmes is doubtless skilled in the use of the blue pencil, and he would, we think, have done well if he had applied it unsparingly, in order to get rid of the tiresome reiterations which annoy the attentive reader, because they do not in the least add to the force of the argument. We reckon that the book would have gained in point and incisiveness if its dimensions had in this way been reduced, say, by one-third.

The view which Mr. Holmes takes of English elementary education is, it need hardly be said, the reverse of cheerful. The child "has to think what his teacher tells him to think, to feel what his teacher tells him to feel, to say what his teacher tells him to say, to do what his teacher tells him to do." The path of "mechanical obedience" is followed, and the path of "self-realisation," which is the path of true salvation, is forsaken and shunned.

But it may afford consolation to persons directly connected with our elementary schools to know that Mr. Holmes's condemnation rests upon those schools only as a part of a much greater whole. What is true of them is true of all English education, of all Western education, and, indeed, of Western civilisation in general. Outward and visible "results" are alone cared for; that which is "inward and vital" is neglected. The "externalism of the West," "the virus of Occidentalism," is the real mischief, of which the condition of our schools is only one manifestation. For we see the very same blunders on the larger scale in the idea that, human nature being essentially and originally depraved, salvation is to be found in mechanical obedience, either to a legal code or to a church. As the teacher to the child, so is God to his fallen and rebellious offspring, Man. Here, says the author, is our fundamental mistake. We must, he thinks, substitute the doctrine of original goodness for that of original badness; we must learn to trust human nature; and we must not fear to let the child realise his true self. We might do well, Mr. Holmes thinks, to take a leaf out of the book of Far Eastern thinkers, who concluded ages ago that for the full development of human nature a plurality of lives is needed, but that Man's journey to the goal of spiritual maturity may be shortened by favourable conditions of education. He regards the Founder of Buddhism as "the greatest educationalist, if not the greatest moralist, that the world has ever known."

Well, this is one way of envisaging the matter, and we certainly are not going to quarrel with the author for raising the plane of discussion to the heights of an idealistic philosophy, though we doubt whether his having done this so insistently will add to the utility and influence of the book. Many of his readers will probably find all they want of his views in the chapters entitled "A Familiar Type of School" and "A School in Utopia." In these the author tells us in concrete and practical fashion what, in his opinion, education now is, and what it might be.

That something is grievously wrong with our educational system we do not doubt. But we have more than a suspicion that something is also wrong with Mr. Holmes. His generalisations are, we think, far too sweeping. He leaves no place at all for "mechanical obedience"—which strikes us as a paradox not without its dangers. In his strictures on examinations and all that they imply, he does not seem to realise the enormous difference it makes whether the examination is purely external or partly conducted by the teacher himself. His diatribe is really directed against *bad* examinations and stupid examiners. He admits the efficacy of Oxford "Greats," an examination "the most difficult to cram for and the most profitable to read for." But why should these attributes be peculiar to Oxford "Greats"?

Our general estimate of the book may be conveyed in the saying that what is true is not new, and what is new is not always true; but we think it contains many valuable, because freshly stated, things. In particular, we direct attention to what is said in chapter iv. and elsewhere about the "expressive faculties" and their relation to the "perceptive." But the most striking thing about the book is that its author, who has known our school system so long, should think so badly of it. What an unhappy official life Mr. Holmes must have led!

## MORAL EDUCATION.

(1) *Youth's Noble Path.* By F. J. Gould. xx+326 pp. (Longmans.) 2s. In India, Re. 1. 4 As.

(2) *The Essentials of Character.* By Edward O. Sisson. x+214 pp. (New York: The Macmillan Company.) 4s. 6d. net.

(3) *Character and Empire-building.* By F. J. Cross. viii+171 pp. (Cassell.) 1s. 4d.

(4) *Sermons to Young Boys.* By F. de W. Lushington. ix+147 pp. (Murray.) 3s. net.

(5) *Shrewsbury School Sermons.* By D. B. Kittermaster. 100 pp. (Frowde.) 2s. 6d. net.

(6) *The Nature of Personality.* By William Temple. viii+120 pp. (Macmillan.) 2s. 6d. net.

(7) *The Life of Christ.* By Jeremy Taylor. xxiii+189 pp. (Simpkin, Marshall.) 2s. 6d. net.

(8) *The Revelation of St. John the Divine.* Edited by G. H. S. Walpole. xx+82 pp. (Cambridge University Press.) 1s. 6d. net.

(9) *Early Religious Poetry of the Hebrews.* By E. G. King. xvi+156 pp. (Cambridge University Press.) 1s. net.

(10) *The Hebrew Prophets.* Vol. iii. Edited by Francis H. Woods and Francis E. Powell. xii+317 pp. (Clarendon Press.) 2s. 6d. net.

(11) *The Old Testament Narrative.* By Alfred Dwight Sheffield. xxi+510 pp.; illustrated. (Constable.) 6s. net.

MR. GOULD has written "Youth's Noble Path" (1) with an eye to Indian children, enriching his pages with copious quotations from the Ramayana and Mahabharata and other Oriental classics. But Mr. Gould has quoted in his own way, a way calculated to interest English children as well as Indian. The sixty-two lessons cover almost every aspect of the moral life—courage, self-reliance, sincerity, modesty, sympathy, courtesy, friendship, social service, duty, industry, progress, humanity. For the most part the numerous stories told are apposite to the purpose in view, and if here and there a story seems to point a much stronger lesson in another direction than the one indicated, the narrative is always worth having for its own sake. The breadth of outlook and the loftiness of tone are

specially to be noted, while the painstaking research and the careful arrangement and application of the illustrative material are indications of the author's thoroughness. If the story of Rama is, to an English reader, too extensively drawn upon, it must be remembered that no such thought would occur to the Indian, who cannot hear too much or too often of his glorious hero. The book is one likely to be enjoyed by teachers. Everyone should read the chapters: "The Prince with the Great Heart" and "Live for Others." Needless to say, the author does not confine himself to the East, but draws also from the West, some of his finest lessons being from the Christian Scriptures.

The sub-title of Mr. Sisson's book (2) indicates precisely its scope, "A Practical Study of the Aim of Moral Education." Beginning with native tendencies, the author goes on to show how they should be treated, the function of education being to stimulate the desirable impulses and to discourage the undesirable, its problem being to decide between these. Wisely the author insists on, what cannot be too often repeated, the fact that "the child is being educated whenever he is awake." Tastes, habits, conscience, ideals, and religion are successively dealt with, a chapter on the Social Ideal being notably modern and valuable, with its insistence that "business exists for the sake of human life: no human life can ever exist for the sake of business." Mr. Sisson leans rather to what he aptly calls "the general moralisation of the curriculum" than to the separate moral lesson. Certainly there is danger in the latter when it falls into unsympathetic hands, a Midland teacher having concluded a task of the kind with, "Now, lads, put away your Bibles, and let us turn to something useful."

An attractive way of pointing moral lessons is to take incidents from history and real life. This is effectively done in Mr. Cross's little book (which is admirably illustrated, by the way), "Character and Empire-building" (3). Unlike the preceding books, it is prepared as a reader for boys and girls. Stories of industry, daring, self-sacrifice, patriotism, and chivalry, in which the names of Gordon, Florence Nightingale, and Sir Philip Sidney figure, efficiently indicate the style of the book. These classic examples, which will have to be told to many generations, are set forth in a vivacious manner and are never overloaded with "moral."

The sermon still continues to play an important part in the moral education of the young, especially at our public schools. No two sets of sermons could be in more striking contrast than Mr. Lushington's (4) and Mr. Kittermaster's (5). Yet both were preached at public schools, Elstree and Shrewsbury respectively, and both are excellent in their way. A defect of the former is the too technical character of the language used, especially as addressed to "young" boys. Also they are rather too abstract. This is the more noticeable, perhaps, when placed alongside Mr. Kittermaster's concrete, arresting, and remarkably human utterances, although it must be borne in mind that the Shrewsbury Mission to slum lads in Liverpool gave Mr. Kittermaster an unusually human and interesting text on every occasion when, in the course of his seven years' conduct of the mission, he came to the Shrewsbury pulpit to talk about it. This volume will inform those who doubt, and inspire those who believe in, school missions.

The lectures on "The Nature of Personality" (6), by the headmaster of Repton, hardly come within the range of school instruction, though of value to the teacher who is tracking morals and moral being to their source. The author puts them forward as a stimulus and guide to,

rather than a philosophic treatment of, the subject. There is remarkable vigour and terseness in the style. The reprint of Jeremy Taylor's "Life of Christ" (7) will also appeal to a limited public, particularly to those going up to the older universities for a Divinity course. Bishop Walpole's "Revelation" (8), in the "Revised Version for the Use of Schools" series, follows along the lines of the previous volumes issued, taking special account of modern theological scholarship.

Dr. King's "Early Religious Poetry of the Hebrews" (9) is a fascinating introduction to the subject. Considering the elaborate amount of pointing, accenting, italicising, and the use of Hebrew characters, it is a marvellous production for one shilling. With regard to Messrs. Woods and Powell's third volume of the "Hebrew Prophets" (10), it is unnecessary to do more than say it maintains the high standard we had the pleasure of noting of its predecessors. "The Old Testament Narrative" (11) is a handy arrangement of the history of Israel in the language of the Scriptures, but in chronological order, with a free use of modern textual scholarship. This admirable volume has involved critical and editorial labours which hardly appear on the surface; it will form a valuable adjunct to the teacher's library.

## THE TEACHING OF HOUSECRAFT.

*Minding the Baby.* By Mrs. Leonard Hill. 63 pp. (Arnold.) Paper, 3d.; cloth, 6d.

*Life and Health.* (Health Reader III.) By Dr. C. E. Shelly and E. Stenhouse. 237 pp. (Macmillan.) 1s. 8d.

*Practical Plain Needlework.* By Annie R. Chamberlain. 196 pp. (Pitman.) 3s. 6d.

*Handwork and Needlework.* By E. P. Claydon. 87 pp. (Pitman.) 2s.

THIS group of four books attests at once the interest given to the really practical aspect of the education of girls and the helpfulness that is now placed at the command of teachers. "Minding the Baby" contains plain directions which are intelligible to the youngest mother for keeping the baby in good health, and in what naturally follows, good temper. In fact, if baby is minded properly he is not a trouble but a joy. He is to receive the utmost care, but he is not to be spoiled. Mrs. Hill strongly recommends that children should not be sung to sleep. But they are not to miss the nursery rhymes so dear to young folk, bath time being made the jolliest time of the whole day, as the tubbing is to be given to the accompaniment of "This wee pig went to market," or "Pit, pat, polt. Shoe the wild colt." Mrs. Hill lays great stress on the food to be given to baby, and if she succeeds in teaching the future mothers, not what to give so much as what *not* to give, she will have done good work. Common sense is the characteristic of the book, and nature's own medicines are those relied upon—fresh air, sunshine, and good milk.

We pass naturally to the wider subject of the health of people of all ages. Dr. Shelly and Mr. Stenhouse in "Life and Health" have done good service in dealing with the elementary facts of life, showing how the pitfalls which lie in its path may be avoided. In this country more than in any other people have the idea that they must be shielded from what they call draughts. In most foreign countries children can be taken for holidays both interesting and instructive, because they can make their beds in barns. Here most mothers will not allow their darlings out of their sight unless they can be assured they will sleep in beds, no matter how many are in a room; it

may be a veritable Black Hole of Calcutta. To teach young people why the teeth and skin should be kept clean, why they should breathe deeply through the nose, and why rooms should be ventilated, is to prepare them for becoming strong and healthy men and women; and on all these subjects these authors give wise and simple guidance.

Needlework is now treated as an educative agent. Garments for everyday use have to be sewn or mended, and aimless, blinding stitches have been, let us hope, for ever abolished from school. The purpose of darning and sewing is apparent to the child, and even in the earliest years the anticipation of accomplishment counts for much. Miss Chamberlain's "Practical Plain Needlework" should prove a very useful book. The various processes in making and mending garments, and in knitting, are illustrated with clear, bold diagrams.

"Handwork and Needlework" takes the child from elementary paper-folding to the making of difficult garments. Miss Claydon shows ingenuity in the use of scraps and in devising articles requiring much manipulation and little material. Many children would delight in being the possessors of the pockets, workbags, &c., which she suggests. But it is doubtful if a girl could give much of her short school life to this style of work. There are so many garments she should learn to make before she reaches the age of fourteen that there is abundant work at hand.

### SPORTS AND GAMES.

*The Encyclopædia of Sport and Games.* Vol. i. Edited by the Earl of Suffolk and Berkshire. New (second) edition. viii+496 pp. (Heinemann.) 10s. 6d. net.

Most lovers of sport will give a hearty welcome to a completely revised and much improved edition of this encyclopædia. The developments which have been seen in so many branches of sport during the past ten years have necessitated the rewriting of most of the articles, as well as the addition of many new ones. It seems hardly credible that the editor should have hesitated to include in the first issue an article on cycling. To-day, not cycling only, but motor-ing and aviation have also become the objects of so much competition, international and otherwise, that it would seem ridiculous to exclude them, and they are dealt with in lengthy articles. Some idea of the completeness of the encyclopædia may be gained from the article "Cricket," which, in addition to introductory sections on the history, laws, and general conduct of the game, includes special sections on batting (Ranjitsinhji), left-handed batsmen (F. G. J. Ford), fast bowling (Richardson), googly bowling (Bosanquet), wicket-keeping (M. C. Kemp), and colonial cricket.

To many readers the natural history sections will prove most attractive. The pursuit of game of every kind is treated in considerable detail. To take a small example, bear shooting alone demands five separate articles, while alligator shooting even is not forgotten. The instantaneous photography of animals, birds, and fish, which may almost be called a development of the present century, has permitted enormous improvement in the illustration of natural history. We are shown the rhinoceros in the act of charging, the deer feeding or fleeing from danger, even the lion as he pounces on his prey by night. But the work of great artists is not forgotten, and the development of the three-colour process has allowed the reproduction of beautiful plates after Caldwell, Thorburn, and others, of which the capercaillie, or wood-grouse, by the last-named artist may be cited as an example. In other than the natural history sections the editor has taken full advantage

of improvements in the art of illustration. It is an enormous gain to see the athlete "snapped" in the actual performance of his feat of strength or skill—the famous cricketer as he cuts or runs out to drive, the golfer at the finish of his drive, the high jumper as he clears the bar. So far as can be judged from this first volume, the encyclopædia justifies its claim to be up-to-date and complete. The lover of any branch of sport is sure of finding his own special subject given its due place, while the names which will greet him in turning these pages are more than sufficient guarantee of the value of the contents. The book appeals to old and young alike, but the writer can hardly conceive of any other calculated to give greater pleasure to the generation of open-air children which is growing up at the present day. It should find its way into every school library, where it will prove the most popular of all works.

### RECENT SCHOOL BOOKS AND APPARATUS.

#### Modern Languages.

*Easy Free Composition in German.* By Walter Rippmann. 66 pp. (Dent.) 1s. 4d.—This little book displays all the care in detail and the ingenuity which we have learnt to associate with the name of the editor; and practical teachers will be grateful for this fresh evidence of the patience and skill which do so much to lighten their labours. It is even better than the corresponding "Easy Free French Composition," and should work prompt conviction in any teachers who have not yet discovered that a well-ordered, systematic, and easily graduated course in composition is likely to prove much more interesting and profitable than translation exercises of the old type.

*L'homme vert*, Jetta S. Wolff. 148 pp. 1s. 4d. *Tableaux mouvants*, Lilian G. Ping. 123 pp. 1s. 4d. (Rapid Readers.) *Les quatorze saints*, Riehl. Edited by W. O. Brigstocke. *La mule du pape*, &c., Daudet. Edited by T. H. Burbidge. *L'affaire des contrebandiers*, Töpffer. Edited by H. M. O'Grady. *Le trésor du vieux seigneur*, Erckmann-Chatrian. Edited by Violet Stork. *Mémoires du Général Marbot*. Edited by P. L. Ravès. *Le bien-venu*. Extract from Hugo's "Les Misérables." Edited by H. M. O'Grady. (Short French Readers.) Second and third years, 4d. each; fourth year, 6d. each. (Dent's Modern Language Series.)

We are glad to see that the intensive reading of the well-known short French readers is to be supplemented by a series of rapid readers. Miss Ping's "Tableaux mouvants" are much more than a set of dialogues of the ordinary type. These excellent little scenes are lively and eminently "actable"; the matter is arranged with so much care that they are very nearly self-explanatory, while the ideas and words are well within the grasp of intelligent children. "L'homme vert" is a collection of stories and legends retold or invented by Miss J. S. Wolff. These pleasant little tales are in the well-known engaging style of the author, and should be of particular interest to girls. The notes are designed for use rather than for display, though we should have liked to see them at the foot of the page, after the good custom of the series.

"Les quatorze saints" reads even better in French than in the original German. Mr. Brigstocke's notes are excellent, and the *questionnaires* thoroughly practical, but the exercises somewhat difficult. We should prefer to use them with a third year.

In the three stories from Daudet, the notes and *questionnaires* are really well done, and bear strictly on the text.

but some of the exercises have less relation to the matter. Exercises 17-24 are apparently designed for revision.

Töpffer's "Contrebandiers" has been thoroughly well handled by Mr. O'Grady, and the questions and *explications* are very good indeed. An intelligent class will relish the matter, and find ample opportunity for display of mother-wit in the exercises. "Le lieu" on p. 41, par. 2, is presumably a misprint for *lien*.

Erckmann-Chatrian appears to advantage in "Le trésor." Miss Stork's *questionnaires*, notes, and exercises are all simple and admirably practical, and in close connection with the matter. The result is a valuable text, a real aid to teacher and pupil.

The extracts from "Général Marbot" have been judiciously compiled, but the exercises are not uniformly good, and are disfigured by one or two misprints.

Mr. O'Grady's work in "Le bienvenu" (attributed in error in the catalogue to the general editor) makes this a very good advanced text. We should be glad to see other readers compiled from "Les Misérables."

(1) C. Nodier, *Trésor des Fèves et Fleurs des Pois*. Edited by Alice M. Ritson. vi+90 pp. (2) *Mme Pape-Carpentier, Histoires et Leçons de Choses*. Edited by W. Rolleston. viii+88 pp. (Macmillan.) 1s.—These are welcome additions to Mr. Siepmann's Primary French Series. The clearly printed text covers 35 and 32 pages respectively. The notes are generally satisfactory. (What Mr. Rolleston means by saying that the *m* of *faim* should be sounded like an *n* is not clear.) The vocabulary to Nodier appears to be complete; this cannot be said of the other book. There are also a *questionnaire*, with about half-a-dozen questions to the page, "words and phrases," exercises on syntax and idioms, passages for retranslation, and a key to the "words and phrases."

*French Composition*. By C. Bagnall and J. Michaut. viii+98 pp. (Nutt.) 1s. 6d.—This "graduated French course" contains a number of anecdotes, fables, &c., each followed by questions on the text in French and exercises in applied grammar; the English rendering of these stories, printed on pink paper; a selection of sentences on syntax and idioms, and sentences for retranslation, and a vocabulary. The book will appeal to those who prefer to teach translation from English at a fairly early stage. It is a pity that the stories have not been numbered on pp. 1 to 44, and 45 to 60, and that the proof has not been read more carefully, especially as regards the punctuation and the accents. Words similar in French and English have apparently been omitted in the vocabulary, though it is not clear on what principle *poète*, *exciter*, are given, but not *miraculeux*, *splendide*.

*Morceaux Choisis de Littérature Française*. By Mons. [sic] G. H. Marchat. xi+198 pp. (Walter Scott.) 2s. 6d. net.—Thirty-two prose extracts of fair length have been chosen from the works of twenty-nine writers of the nineteenth century. Difficulties in the text are dealt with by footnotes, in which French and English explanations are given in a somewhat disturbing fashion. The grammatical notes are often rather old-fashioned. The second part consists of (English) *Phrases détachées sur les difficultés des "Morceaux Choisis" pour traduction en français*; the third part contains the "Résumé in English of the *Morceaux Choisis*," which, to quote the preface, "is intended to afford the private student an indication of the general purport of each passage before reading the French passage, and to provide a series of exercises in continuous French prose composition."

*French Idioms and Expressions*. By H. M. Maitland. 47 pp. (Simpkin, Marshall.) 6d.—This is an unsatisfactory piece of work. The idioms are supposed to be alphabetically arranged; the only proper arrangement is according to the alphabetical order of important words. To give a *match* for anyone, to be under A, and to give some distance from it a *match* for somebody, to be is to have curious ideas of alphabetical order. Misprints are also too common; e.g., *embarrassé* (p. 3), *au tour* (p. 5), *libraire* (p. 9), *représentez* (p. 15), *serrée* (p. 23), *dentes* (p. 35), *le peau* (p. 47). *Quelque chose* is always printed as one word, the names of the months have capitals, *cœur* is printed *coeur*, and the equivalent of *Mr.* is given as *Mons.*

*A. Dumas, Récits de Chasse*. Edited by M. Ceppi. vii+96 pp. (Hachette.) 1s.—Messrs. Hachette are issuing a New Series of French Readers on the Direct Method, and Mr. Ceppi opens it well. The text of these capital short stories is supplied with marginal notes, in which words and phrases are explained in French. At the end of each story are *questionnaires et exercices*, a set to every four or five pages of text. These are generally quite satisfactory. Occasionally we are not sure what is meant; what, for instance, are the words derived from *matinal*, *s'acheminer*? There are also some useful *exercices de composition*, in which suitable subjects are set for free composition, with a skeleton outline.

*Molière, Le Médecin malgré lui*. Abridged and edited by M. Ceppi. 64 pp. (Harrap.) 6d.—This is a volume in the series of Harrap's Shorter French Texts. It contains a short *Note sur Molière*, the text, a page of notes (in French), five pages of exercises, and a vocabulary which supplies the renderings of about ten words to the page, including such common words as *oreille*, *santé*, *habile*, *espérance*, which anyone reading Molière ought to know. The exercises are not particularly good.

#### Classics.

*Life in the Roman World of Nero and St. Paul*. By T. G. Tucker. xx+454 pp.; illustrated. (Macmillan.) 12s. 6d. net.—We do not very much like the title of this book, which is not directly connected with Nero and St. Paul; nor do we like its heavy glazed paper. There is also not so much in it as the size suggests; it is printed very large, and might easily have gone into a small volume. When we have said this, we are free to add that the book is attractive to read, if a little popular in style. It would do admirably to put into the hands of a sixth-form schoolboy, or an undergraduate of the modern type. Dr. Tucker has clearly written from first-hand knowledge: and he has been able to put before us a clear picture of the state of the Roman Empire, although it is not a detailed picture. Thus the student will not easily find elsewhere such a sketch of the provinces; or the modes of travel; the town house and country house. Perhaps the social day has been described elsewhere, and the Roman amusements, religion, philosophy; but it is true that the story is well told here. School days and the life of the young are matters of great importance: Dr. Tucker gives the public part of this satisfactorily, but he hardly brings out the home discipline. No doubt at this date the home was not what it had been, when Cato and Scipio were alive; yet the tradition had not wholly died. Quintilian might have supplied some interesting details: we have not noticed his name in the book.

The plan of such a book is necessarily without real unity. Dr. Tucker tries to create an artificial unity by

supposing a typical family, Silius, Marcia, and their children. He did the like in his little book on Greek life, but it is not so fully carried out here. A sketch of Nero, which fills one chapter, comes in with an apologetic air, and every now and then pops up Paul to do the proper thing; but he also hardly belongs to this galley. These difficulties meet every writer on social life, from Becker onwards, but Dr. Tucker has gone out of his way to live up to the title of the book. It remains true, however, and we are glad to say it, that the reader will be entertained and instructed.

*Ovid's Metamorphoses, Book II.* By F. R. G. Duckworth. xvi+108 pp.; illustrated. (Blackie.) 1s. 6d.—We are bound to direct attention with each new book to the same points: it is a monotonous task; perhaps some day some editor will attend to it. He will then perhaps either cease to give a running summary in English, or say what reason there is for it, and how he justifies himself for doing the boy's work. Perhaps he will then drop his vocabulary, or say why a boy who can read Ovid needs to be told the meaning of *ego, et, facio, fama, filia*, to take a few words from the first page we open. Again, using the *sortes Ovidianae*, we see: "*tanti*, genitive of price; *alterius*, supply *manus*." All this is simply hackwork, and calls for no further notice. We see the individual hand in quotations from English poetry, which are welcome; and in the picture of Rome in the introduction, οὐδὲν ἄρδς τὸν Διδύμου, but attractive enough. What he says of the "Metamorphoses," and their influence on Shakespeare, is good; but in reading it one is tempted to ask, Who are in the writer's view? Is it really so that boys of fifteen or sixteen have to be told all this? It is certain, by the way, that Shakespeare could read Latin, though he had also read Golding. Shakespeare's Ovid is in the Bodleian.

*The Agamemnon of Aeschylus.* Greek text with English verse translation. By sixth-form boys of Bradfield College. x+120 pp. (Frowde.) 1s. 6d.—This translation is a creditable performance, which is suited to its purpose modestly stated in the preface—to enable the audience to understand the general drift and the development of the plot. Tried by a severer standard, the authors can hardly expect to succeed where Plumptre and many others have failed. The choruses of this play are enough to daunt the stoutest heart, and the dialogue is only a shade less difficult to render well. The dialogue shows the usual faults of immaturity: the so-called "poetic diction," inverted constructions, and so forth.

*The Essentials of Latin Syntax.* By C. C. Mierow. viii+98 pp. (Ginn.) 4s.—This book is meant for a handbook, to be used by those who have gone through the ordinary accidence and syntax. It has the following order: cases, one by one; moods in principal clauses (actual fact, willed fact, desired fact, possible fact) and subordinate clauses (conjunctive—purpose, result, time, cause, condition, comparison, concession—relative, interrogative); indirect discourse; noun and adjective forms of the verb. A second part contains exercises based on Caesar and Livy. The matter is arranged in columns: explanations, references to grammar, and examples. There is nothing original in the book: it is clearly arranged and easy to use. The exercises are of the usual incoherent type, except that later we have continuous pieces of prose.

*Noctes Latinae.* Written, adapted, or arranged by W. Madeley. 50 pp. (Loder: Woodbridge.)—This is an unpretending little book containing some stories, several

unfamiliar to most readers. They are a story of a talking raven, Papirius and his mother, Arion, Androclus, Rhampsinitus, Simonides, the Ephesian matron, Dionysius, the Menaechmi, Alexander and his physician. The style is simple, and the tales will be found attractive. There are notes and a vocabulary. All these stories, however, as a matter of fact, are much better told than read: but the book may be used for revision.

### English.

(1) *English Grammar for Beginners.* By J. P. Kinard. 256 pp. (New York: The Macmillan Co.) 2s. 6d.

(2) *Pitman's English Grammar.* Revised by C. D. Punchard. 142 pp. (Pitman.) 1s. net.

A comparison of these two English grammars is a review of a whole movement in the teaching of English. The American author makes the sentence the basis of all study and development, and by abundant illustration makes effective use of a method which is really inductive; the English author starts off with an historical outline of the language, and gives us the traditional chapters on orthography and etymology before introducing us to the parts of speech; and even then the parts of speech are treated as isolated phenomena, or at most as classified lists, without any very clear relationship with connected thought. The difference seems to us to be simply this: one method aims at leading the child to appreciate structure by a training in building, while the other offers a supply of theoretical knowledge which can only be assimilated as a result of far more experience than the pupil possesses.

*Arnold's Shilling English Composition.* By E. J. Kenny. vi+160 pp. (E. Arnold.) 1s.—Used as the author intends it to be used, this will prove a useful and suggestive book. As he observes, the exercises may be supplemented by others based on the texts studied in class, and we are inclined to think that this connection with work actually being done must always be of special value. We would even invert the author's remark and say that the text being studied in class must be supplemented by such illustrations as are here supplied. The material is so skilfully arranged that the teacher will have no difficulty in finding what he requires. The last few chapters dealing with composition, in the narrower sense of the word, contain useful hints and subject lists.

*English Dialects from the Eighth Century to the Present Day.* By W. W. Skeat. ix+130 pp. (Cambridge University Press.) 1s. net.—This little work is a volume in the new Cambridge manuals of science and literature. Authoritatively written, excellently printed, and tastefully bound, it should be sure of a warm welcome. Dr. Skeat has the rare gift of being able to put the conclusions of scholarship into an untechnical form. After tracing clearly the history of the Northumbrian, the Southern, and Mercian dialects, he devotes a chapter to foreign elements in them—and a fascinating chapter it is. As was to be expected, some specimens are given from modern dialects, including Scottish, in three varieties, Northern English, Midland, as spoken in Lincoln, Lancashire, Sheffield, and Cheshire, Eastern, Western, and Southern. A bibliography, sensibly limited to two pages, and a facsimile of Henry III.'s English proclamation, add to the value and interest of a book which will appeal to a large educated public.

*A Short Sketch of the History of the English Language.* By O. T. Williams. 46 pp. (Cassell.) 1s. 6d. net.—This short sketch might have been lengthened with advantage. As it stands, it seems rather the transcription of lecture notes to university students than an independent introduc-

tion to what is admittedly a very difficult subject. But, even so, it would be a useful handbook if there were considerably more specimens. Of course, the author may reply that his book is really a grammar, and that therefore specimens are not essential; but in that case we do not think that he has chosen a suitable title. What is now, no doubt, a convenient revision book, might with a little adaptation be made a valuable teaching book for the use of sixth-form boys preparing for English Language Matriculation examinations with the view of specialising in English for their degrees.

*Modern Commercial Practice with Correspondence. Part II. The Export and Import Trade.* By F. Heelis. 234 pp. (Macmillan.) 2s. 6d.—This is the companion volume to Part I., which dealt with the home trade, and follows the same lines. For students in the advanced stages of commercial practice there could be no better guide, for theory is illustrated in the best possible way by the working out of complete commercial transactions. All the documents used in these transactions are reproduced, and cover a wide field of operations. There are few incidents of export and import trade with which a student who has mastered this book would not be qualified to deal.

*On the History and Use of the Suffixes -ery, -age and -ment in English.* By Fredrik Gadde. viii + 143 pp. (Heffer.) 2s. 6d. net.—We have found this Swedish contribution to the history of our language most interesting and scholarly. The author explains that he has chosen these particular suffixes for this detailed study "because they are among the most commonly used ones of those adopted from French," and because many of their meanings are common to the three. The treatment follows two main lines, their early history and their meaning. Not the least interesting part of the book is the introduction, in which is sketched the relation between the French and native element in English. We may commend the book to students of the English language as a very valuable contribution to the study of word-formation.

(1) *The Elizabethan Shakespeare. A Midsummer Night's Dream.* Edited by W. H. Hudson. 200 pp. (Harrap.) 1s. 6d.

(2) *Much Ado About Nothing.* Edited by S. E. Goggin. 137 pp. (Clive.) 2s.

(3) *Merchant of Venice; As You Like It.* Arranged for reading aloud. By A. P. Graves. 136 pp.; 148 pp. (Dent.) 9d. each.

(4) *Shakespeare for Home-reading. As You Like It and King Lear.* Edited by K. Harvey. 87 pp.; 146 pp. (Routledge.)

(5) *Cymbeline.* Edited by J. H. Brittain. 162 pp. 2s. *Coriolanus.* Edited by C. W. Crook. 186 pp. 2s. (Ralph, Holland.)

Half-a-dozen Shakespeare plays, variously edited and variously shaped, show that editions of all kinds are called for. The Elizabethan Shakespeare (1), noticed often here, is a scholar's edition: it smacks of 1623. The introduction puts the text question clearly before the beginner: it has, too, all the interest without the bulk of the monumental variorum. Even Charles Lamb would have approved of it, notes and all. "Much Ado" (2) is edited as an examination text, with a careful introduction and considerable help in it. "The Merchant" and "As You Like It" (3) are arranged for home-reading—an excellent idea, now that Bowdler is so undeservedly frowned on. An introduction gives good hints about the formation of reading societies. The books are dainty, cheap, and

pocketable. The expurgating is very carefully done. "As You Like It" and "King Lear" (4) are edited very differently in this series; a running commentary, very brief, is filled up with long quotations. The method is novel outside the lecture-room, where it has often been tried: it certainly succeeds when the living voice is present; and may do so in cold type. The books are admirably printed, and are the work of a Shakespeare-lover. "Cymbeline" and "Coriolanus" (5) are *bona fide* examination books. To begin with, they are interleaved—a very good device: and their introduction, notes, and glossaries are full. The lonely student, far from teachers and libraries and armed with a good lexicon (say Schmidt's), is, with these books, fully prepared.

*Word-formation in Kipling. A Stylistic-Philological Study.* By W. Leeb-Lundberg. 116 pp. (Heffer.) 2s. 6d.

*Slang and Cant in Jerome K. Jerome's Works.* By O. E. Bosson. 79 pp. (Heffer.) 2s.

Both these books are theses for the doctorate of Lund University. The English Lektor there, Mr. C. S. Fearenside, supplies an interesting preface, in which he explains the high standard demanded for doctoral treatises in Sweden, and gives a list of recent work offered on English subjects. If—as seems probable—the present theses may be taken as fair samples of the type of work submitted, we cannot speak too appreciatively of the scholarship of the modern language department at Lund. In both books the material is handled in a highly original and interesting fashion.

### History.

*The Story of Westminster Abbey.* By V. Brooke-Hunt. xi + 356 pp. (Nisbet.) 1s. 6d.—"Geoffrey," who inspired the author to write this book, will be disappointed, but only in one particular. There are not "plenty of pictures," only one of the "high altar." But otherwise this boy of "more brains than body," who went to "one of the distant colonies" where he "seemed to be doing lessons all day, only they weren't out of a book," and afterwards visited the Abbey, will have his desire. Miss Brooke-Hunt has not given us a catalogue of those buried or recorded at Westminster, but, after sketching the story of the Abbey, gives readable sketches of the heroes of the Church, grouped under subjects, and illustrated with plenty of anecdotes. The result is a book well worthy of a place in the school or child's own library.

*England and the English.* By A. J. Berry. 200 pp. (Blackie.) 1s. 3d. *Europe and its Peoples.* By H. W. Palmer. 288 pp. (Blackie.) 1s. 8d.—These books are respectively Nos. III. and IV. of a series called "Lands and their Stories." Each has two appendices, written by Mr. D. Frew, in the first on the geography of England and outlines of English history, in the second on the geography of Europe with a longer sketch of English history. The main idea in both is to base the history on the geography. But there is no scientific classification of the material. Rather is it used to make a series of detached chapters. This does not in any way detract from the merits of the books as readers, and, with the exception of some minor points which need correction, they may be commended for use in our junior classes. Both are plentifully illustrated with pictures, both plain and coloured, of all kinds, photographic and other. Maps, too, are supplied whenever desirable.

*Tales from the Old French.* Translated by I. Butler. 265 pp. (Constable.) 5s. net.—When the school teacher is tired out with the term's work and wants to forget for a time his daily race to keep up to date or his attempts



to understand the requirements of the Board of Education, let him fall back on this charming bit of mediævalism. Here he will be soothed by a sense of leisure as he follows the doings of knights and ladies, angels and hermits, in a world that is not pure fancy, but close on the borders thereof. He can begin with the first page (for Miss Butler wisely puts her introduction into an "epilogue," and her bibliography and "translator's note," both of them very short, are later even than that), and in a moment he will be centuries away from the twentieth, with all its cares and sorrows. To reveal anything more of the contents would be to rob the work of its charm.

**English History Illustrated from Original Sources.** From the Earliest Times to 1066. By S. Melhuish. xviii+233 pp. (Black.) 2s. 6d.—We have reviewed in previous numbers of THE SCHOOL WORLD other volumes in this excellent series. This volume is on the same lines as its predecessors. It contains a hundred and twenty-eight quotations from the authorities for the pre-Norman period of our island-story, ranging from Diodorus Siculus, Tacitus, and Julius Caesar to the Anglo-Saxon Chronicle and Wace. There are explanatory notes to some of these, and the selections are followed by a short review of the sources, genealogies of English kings and Norman dukes, and a date summary. There are also a goodly number of useful pictorial illustrations; but what we miss is a criticism of the statements made by the authorities. Even though the selections are carefully chosen, surely not all of the quotations are unchallenged history.

**The Making of England and the Empire.** Part II. By M. E. Hancock. 129-254 pp. (Stead's Publishing House.) 4d. net.—This is the second part of Miss Hancock's book, the first part of which we noticed not long ago. It has pictures of a similar kind, and maps, and at the end a series of questions on the period treated of (1087-1485). The reader will scarcely gain much historical information from its pages, but it will interest young readers in the subject.

### Geography.

**The Statesman's Year-book, 1911.** Edited by Dr. J. Scott Keltie. 1484 pp. (Macmillan.) 10s. 6d. net.—"The Statesman's Year-book" maintains, in its present issue, the high standard of accurate information and of statistical detail which has been a marked feature of all former editions. Although nominally intended for statesmen, the year-book is also of the greatest use to teachers in providing materials for lessons, supplementary to those in school text-books. For this purpose it is invaluable to the ardent teacher, who not only wishes to be up-to-date, but also to be thorough in his work.

In the edition just published considerable improvements have been made in the sections dealing with Turkey, China, and Spain; some of the results of this year's census are recorded, while incidents which happened as recently as May are duly noted. Of the five maps, two are of special interest: the first, a map of the Panama Canal; the second, a map of Asia showing the projected railway routes to India (a) by land *via* Teheran and Baluchistan, (b) to the Persian Gulf *via* England.

For purposes of comparison, a slight improvement might be made in the statistical tables if a common denomination for the same article was used for all countries. For example, in the tables showing the production of the various cereals, the quantities produced in different parts of the British Empire, in France, the United States, and some other countries are given in bushels, in

Italy and Austria in quintals, Hungary in metric centners, Germany in metric tons, Russia in pouds, &c. In every case a factor is given by which the quantities may be turned into an English measure, but this takes time.

### Mathematics.

**Nisbet's Realistic Arithmetic. Teacher's Book I.** 104 pp. 1s. net. **Nisbet's Realistic Arithmetic. Book I.** 48 pp.; Book II., 48 pp. By H. G. Wood. (Nisbet.) Paper, 3d.; cloth, 4d.—The fundamental idea in these books is the teaching of number relations by the grouping of concrete objects, the interest of the pupils being stimulated by mechanical exercises of an attractive character. On each page are illustrations depicting familiar objects, which enable the teacher to devise an unlimited number of questions on number, tables, money, &c. The books are evidently written by a teacher having a thorough knowledge of the difficulties experienced by children in learning arithmetic, and of the best methods of surmounting these difficulties.

**Elements of Mechanics.** By G. W. Parker. xii+245 pp. (Longmans.) 4s. 6d.—An elementary work dealing with mechanics from the purely theoretical point of view cannot be expected to present any very novel or distinctive features. The reader is not assumed to know any mathematics beyond elementary trigonometry. We think more space might have been given to the graphical treatment of statical problems, especially as engineers, amongst others, appear to be expected to use the book. Examples are chiefly numerical, and the author has wisely endeavoured to exclude those which merely require the substitution of numerical values in standard formulæ. It is now generally considered desirable to combine theory with experimental work, but those who are content with the older method of teaching the subject will find this book a useful introduction.

**Chambers's New Commercial Arithmetic.** By P. Comrie and W. Woodburn. Part I. 192 pp. (Chambers.) 1s.—This book contains the usual long-tots, cross-tots, &c., intended to develop speed and accuracy. Contracted methods of multiplication and division are very clearly explained, and there are short chapters on mensuration and statistical graphs. A special feature is a collection of short methods for calculating prices. The price of one article being known, rules are given with proofs for finding quickly the price of 12, 20, 48, 100, 240, 960, 365. There are also rules for such cases as finding the price per ton when the price per lb. is given. Provided there is no danger of confusing one rule with another when the book is not at hand for reference, they should be found very useful.

### Science and Technology.

**Nestler's Slide Rule for Chemists.** (Gallenkamp.) 10s. 6d. net.—Here is an interesting application of the slide rule to chemical calculations. The upper scales of the ordinary rule are replaced by a series of gauge points representing atomic and molecular weights. By this means the percentage of an element in a compound can be read directly from the results of an analysis; for example, the percentage of chlorine from the weight of silver chloride precipitate formed from a known weight of a chlorine compound. The scale may also be used to calculate results of titrations and nitrogen determinations, quantity and efficiency of currents, and volumes of gases under normal conditions. A molecular volume gauge point allows the direct reading of volumes of gases from given weights of substances (e.g., hydrogen from a known weight of metal

dissolved in acid), and *vice versa*. The instrument will be found most useful in advanced laboratories.

**Household Foes.** By Alice Ravenhill. xxiii+359 pp. (Sidgwick and Jackson.) 2s. 6d.—“To arouse the interest of young people in the practice of daily domestic cleanliness” is, we are told, the primary object of this book. That it will have this desirable effect wherever it may be introduced there can be little doubt, for its style is arresting and convincing. Since it is entirely modern and scientific in its attitude to houseflies, bacteria, ventilation, and kindred subjects, it naturally “strikes at the very root of many deeply seated traditions and national customs.” We trust every stroke may be effective.

**Lives of the Fur Folk.** By M. D. Haviland. xi+234 pp. (Longmans.) 5s. net.—Animal biography is difficult to do well, and rather futile when done indifferently. In this field, moreover, Rudyard Kipling, E. T. Seton, W. J. Long and others, have established a high standard of quality by which such work will be inevitably judged. Even so, Mr. Haviland's book must be accounted a success. His stories (of a fox, a rabbit, a cat, and a badger) make very entertaining reading, and show an intimate acquaintance with the conditions under which our few wild mammals live. The illustrations, by Mr. E. Caldwell, form an attractive feature of the book.

**Parables from Nature.** By Margaret Gatty. x+350 pp. (Bell.) 5s. net.—The popularity of Mrs. Gatty's *Parables* is assured. That she called the worker-bee “him,” and made various other little slips in matters of fact, detracts nothing from the high literary quality of the book, and but little from its other virtues. It is pleasant to find the parables in so handsome an edition as this. Miss Alice B. Woodward's sixteen plates—many of them coloured—enhance the attractiveness of a book which ought to be familiar to every boy and girl.

**School Garden and Nature Note Book.** Edited by Gwilym Lewis. 96 pp. (Horace Marshall.) 9d.—This useful diary includes pages for recording weather observations and other nature notes, details of crops grown, &c. It is based on the “Suggestions for the Teaching of Gardening” issued by the Board of Education, and seems well adapted to its purpose.

**My First Book about Pets.** 96 pp. By Margaret Nelson. **My First Book about Gardening.** 80 pp. (Nelson.) 6d. each.—Illustrated by charming sketches, and written in simple language, these little books will be favourites with children.

#### Miscellaneous.

**Tom Stapleton, the Boy Scout.** By Captain F. S. Brereton. 287 pp. (Blackie.) 3s. 6d.—This tale, by one of the most popular of writers for boys, and prefaced by an autograph commendation from the Chief Scout, has for its text the now famous fourth scout law—that of brotherhood among scouts of all classes—and for this reason deserves the careful attention of public-school masters and boys, to whom this law appears to be the chief stumbling-block. The hero, an Etonian, who is at first deterred from joining the scouts by snobbish misgivings, finally succumbs to the fascination of the movement, and ends by being the keenest and most popular member of his troop. For the rest, the plot is well worked out, containing plenty of exciting detail of adventures in England and in Canada, and boy readers are not likely to cavil at some improbable coincidences and one or two

impossible situations. One fault the book has in common with most scout stories; the scouts, who are supposed to be mostly working lads, talk, think, and act like public-school boys, a conventional solecism here and there serving only to throw the unreality of the thing into relief; and thus the “fourth law” appears to present less difficulty than it actually does in practice. A few misprints require to be corrected in the second edition, which the book certainly deserves to reach. The get-up of the book, and Mr. Gordon Browne's illustrations, are admirable.

**Scientific Endowments versus Increased Taxation.** By Elliott E. Mills. 124 pp. (National Unity Press.) 1s. net.—This book is a plea for the juster distribution of wealth, on scientific lines, by change of custom rather than by change of laws. The first and second chapters go to show that abnormally rich families should bequeath endowments to a scientific convocation, which should be formed to create new customs and institutions. But it is not these general questions that perhaps will be of greatest interest to schoolmasters; more nearly related to their work are those on educational endowments and industry and agriculture. The author will enlist the sympathy and support of all educationists when he urges the necessity of a system of training that will imbue everyone with a keen social conscience, and that the wages of the scholastic profession must be such that “the very pick of the nation” will be engaged in the schools. He advocates educational supervision up to the age of twenty-one, “national schools, staffed by gentle-people . . . so good that the upper and middle classes could send their children to them,” and that more assistant-masters should be enabled to marry, as “it would immensely improve the tone of public-school life.” The relation of the older schools and the universities to the land leads up to the relation between national schools and the land; but for this and much more we must refer the reader to the pages before us, which will well repay a careful study.

#### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

#### Domestic Science.

THE generous fund which has been collected in support of the new experiment in women's education, recently initiated at King's College, London, has been the subject of warm eulogy in the Press and in the educational journals. The study of home or domestic science may be regarded as a counterblast to the suffrage movement, which in the opinion of some tends to take a woman out of her true sphere. It will therefore receive the ready sympathy of all anti-suffragists, and generally of those who desire to see a more practical domestic outcome of school and college training. There is, in fact, already a demand in secondary schools for teachers of “domestic science” as there was a few years ago for teachers of “nature-study.” In the present state of educational flux, when every new idea is straightway cast into the melting-pot in the hope that a pure, transparent educational product may ultimately crystallise, it seems worth while to inquire a little more closely into the King's College scheme.

It is based, so it seems, on the fundamental idea that a household is a small factory or workshop with a woman

as manager in charge, and that its proper management, like that of a factory, requires a scientific basis and technical training. Like the work of a technical school, the specialised study is intended to follow the ordinary school course, which probably includes some elementary science. I would like to emphasise this point at the outset in order to make it clear that the new scheme does not apparently touch the ordinary school curriculum. It seems necessary to do so, as headmistresses and school governors are already nibbling at the bait, and, under the name of domestic science, seeking to introduce something of the new domestic programme.

I trust that, with her already overloaded curriculum, the schoolgirl will be left unburdened by the practical study of culinary operations, which take a great deal of time, and, for reasons given below, impart the minimum of scientific information.

At the same time, I see no harm—indeed, every advantage—in illustrating science lessons from everyday phenomena drawn, if necessary, from the kitchen, the laundry, the hot- and cold-water system, or other household fittings and equipment. It will stimulate a spirit of inquiry into the causes of things which the feminine mind is perhaps not naturally disposed to, and infuse into household matters a certain added dignity. It seems perhaps superfluous to refer to a method of illustration which every good science teacher will naturally adopt on his or her own initiative. Let us, then, leave the school and consider domestic science as a specialised study, and in what respects it resembles or differs from an ordinary technical training. Those technical courses which are built upon a scientific foundation, such as engineering, mining, agriculture, dyeing, &c., are intended not only to render an individual an expert in his special branch, but to afford him such knowledge as will enable him to prosecute research and initiate new developments in his industry. I will, then, assume that a girl on leaving school decides to equip herself as an expert in domestic management. Of what does this "expertness" consist? In no respect does it resemble a technical study as ordinarily understood. She will learn some physiology and the management and feeding of children; but will she be independent of the doctor in cases of illness? She will study the domestic hot- and cold-water system; but will she be independent of the plumber? She will learn to do kitchen and laundry work; but will she be independent of the cook and washerwoman? She will perhaps gain some knowledge of book-keeping and banking, possibly of the law of landlord and tenant and the duties of citizenship, all of which is useful, though not essential, knowledge; for in an emergency she will seek her lawyer. She is in no sense a factory manager, because she can never train and control all her subordinates and assistants (including the doctor, lawyer, and plumber), nor is there likely to be much scope for new developments or research. As the study of these different specialised branches are not intended to be mastered, the question arises: how far is she to carry them? In one respect, and in one only, does she resemble a factory manager, namely, in her power of management—a faculty which can never be taught and which determines more than any other the comfort or discomfort of a home.

But there is another side to the scheme. Herbert Spencer in his well-known "Essays on Education" took the utilitarian view, and made the teaching of science the "be-all and end-all" of an educational course. That was at a time when the teaching of science was quite neglected, and many of his views have since been widely and wisely adopted; but the purely utilitarian method has never com-

mended itself to the educational world. Science is now seriously taught, so far as time permits, in most schools; but it has not superseded the teaching of history or literature or modern languages or geography, although much of the knowledge of these subjects cannot be directly utilised. The reason, of course, is that education in its truest sense is intended to give a broad outlook on life, the power of deriving interest from every phase of human existence, of thinking and observing, of admiring what is best in art, literature, and music, &c., of developing moral courage, self-denial, and self-control. Now, although much of this is not incompatible with technical training in household management, it is quite certain that a woman cannot devote one or more of her best years to this study without sacrificing something of her mental development in other directions, and also, it may be added, something of those feminine attributes which are no insignificant part of her domestic influence in the coming years of motherhood. I would not have it supposed that the more highly educated class of women (for whom we may assume this scheme of training is devised) would not be better household managers, wives and mothers, if they possessed a scientific knowledge of domestic affairs; but are so many months or years of study really necessary, and cannot the bulk of it be acquired at school, supplemented later by attendance at a few special classes? Is it not just this class of intelligent women with a broad educational outlook who so quickly assimilate household knowledge, can turn their hands and brains to the multifarious demands of a home with that peculiar feminine insight born of human sympathy which has been so generously developed in their natures?

I would like to see science, especially physics and animal or plant physiology, well taught in schools, and special college courses instituted for women in physiology and hygiene (including the upbringing and feeding of children); but I cannot bring myself to believe that a vast amount of time should be expended in studying the chemistry and physics of the kitchen and laundry any more than that the dissection of the human subject should be a necessary adjunct to the women's physiology class.

I have not touched upon the teaching of science to professional cooks and matrons. Cooks, as belonging to the "expert" class, might be said to require an elementary scientific training. But too much stress must not be laid upon this aspect of the subject. Cooking is an art; that is to say, it is largely empirical in its practice, for it is based upon chemical changes which are so complex that any scientific study of the operations must necessarily be incomplete and unsatisfactory. No one, indeed, could affirm that science has so far improved the quality of culinary practice or, until more is known of the chemistry of its raw materials, is likely to do so. For nurses, a special theoretical training is usually provided as part of their course. As to the training of a "domestic science" teacher, the ordinary degree course in science, including physics and chemistry, is surely the best foundation enabling any intelligent woman easily to grasp and apply the various household phenomena to illustrate her teaching.

I ask, then, in conclusion, are we on the eve of a really lasting development in the education of the well-to-do woman (the working-class woman being obviously excluded), or are we not rather seeking to instil in a rather ill-defined and elementary way the experience and knowledge of the medical attendant, the cook, the nurse, the plumber (and gardener too) by a little physiology, a little elementary physics and chemistry, and some botany, which shall enable the domestic manager to *understand* rather than to *undertake* the duties of her household?

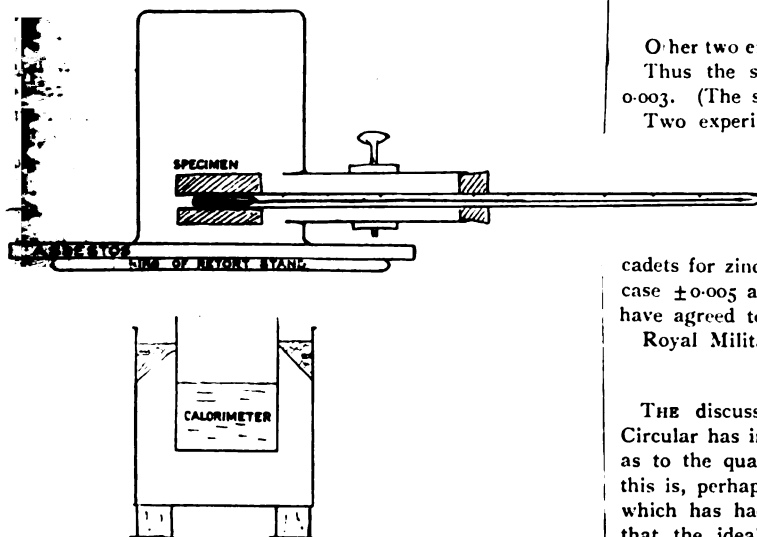
J. B. C.

### A Note on the Determination of Specific Heats.

ALTHOUGH the chief source of error in determining specific heats arises from inaccuracies in observation of the true rise in temperature of the liquid in the calorimeter, yet it is not always easy to insert the hot body into the calorimeter without loss of heat on the way, and errors occur also owing to the uncertainty of ascertaining the temperature of the hot body.

I have devised the simple apparatus, which is here diagrammatically represented, in order to get over these difficulties, and it has been in use with success in the laboratory at the Royal Military Academy.

The apparatus consists simply of an air bath heated from the side or above by a Bunsen burner clamped in a convenient slanting position. The air bath is conveniently



made from a copper-pot inverted and resting on an asbestos card, which can be slipped away sideways from underneath. A calorimeter placed beneath receives very little heat, as the burner heats the vessel from above, and the heated air rises and does not come in contact with the calorimeter; further, the calorimeter need not be placed below the air bath until the moment when the specimen is required to be dropped into the calorimeter. The copper-pot has a tube brazed into it as shown. The end of this tube is closed by a cork carrying a thermometer reading to 200° C. The bulb of the thermometer should be in the middle of the copper-pot. The specimen, of which the specific heat is required, is cylindrical, and is bored through its axis so that it fits and surrounds the thermometer bulb.

The temperature of the air bath is brought up to the desired point, as measured by the thermometer, and kept constant by adjusting the flame; the calorimeter is then placed underneath the apparatus, the asbestos board quickly slipped away, and, having read the thermometer accurately, the thermometer is pulled quickly outwards, thereby releasing the specimen into the calorimeter.

The method is simple, easy to carry out, and gives moderately accurate results. It commends itself for class work, being preferable to the cumbersome Regnault steam-jacket arrangement, and much less costly in the first place. Furthermore, the alteration of specific heat with temperature could be conveniently demonstrated. I add the dimensions of the apparatus used and a series of specific-heat measurements made with the apparatus.

A small pot heats up quicker, and is therefore more

easy to use; the following are suitable dimensions: diameter of pot, 7.5 cm.; height, 8.5 cm.; length of tube at side, 8.0 cm.; diameter, 1.5 cm.

A larger pot gave slightly more accurate results; the temperature could be obtained very constant by regulating the Bunsen: diameter of pot, 10 cm.; height of pot, 11 cm.

Diameter of sample, 2.0 cm.; length of sample, 2.4 cm.; weight of sample, 50 grams.

Example of experiment with sample of zinc:

|   |     |     |     |             |
|---|-----|-----|-----|-------------|
| Weight of zinc                                | ... | ... | ... | 50.57 grams |
| " calorimeter                                 | ... | ... | ... | 99.8 "      |
| " water                                       | ... | ... | ... | 99.9 "      |
| Rise in temperature (corrected for radiation) | ... | ... | ... | 4.46° C.    |
| Fall in temperature of specimen               | ... | ... | ... | 103 "       |
| Initial                                       | "   | "   | ... | 119 "       |

$$s = \frac{109.2 \times 4.46}{50.57 \times 103} = 0.093.$$

Other two experiments gave  $s = 0.098$  and  $s = 0.097$ .

Thus the specific heat of zinc should be near  $0.096 \pm 0.003$ . (The specific heat of zinc is  $0.094$  at  $100^\circ$ , about.)

Two experiments with tin gave  $0.056$  and  $0.058$ , agreeing well with the accepted value  $0.056$ .

The gentlemen cadets at the Royal Military Academy have obtained good results with the apparatus; the mean of about twenty-three experiments by different cadets for zinc gave a value  $0.096$ , and for tin  $0.056$ , in one case  $\pm 0.005$  and in the other  $\pm 0.004$ . Messrs. Gallenkamp have agreed to supply the necessary apparatus.

Royal Military Academy.

ALFRED C. EGERTON.

### An Ideal Inspector.

THE discussion which has centred round the Holmes Circular has incidentally led to various expressions of opinion as to the qualities which inspectors ought to possess, and this is, perhaps, the most fruitful outcome of a controversy which has had many unpleasant features. It seems clear that the ideal inspector must not be, on one hand, the young man fresh from Oxford or Cambridge, knowing practically nothing of the elementary schools, and inclined to lay down general laws through sheer ignorance of the particular cases in which they would have to be applied; nor, on the other, must he be a man who knows the schools of the people intimately, but who, owing to conditions for which he is in no way to blame, has not had a sufficiently liberal education or varied experience to enable him to be a successful director of the work of a large number of those responsible for the education of others.

Broadmindedness is the quality which appears most essential in a good inspector, whether of secondary or elementary schools, and whether serving under the Board of Education or under a municipal authority. The faddist and the man of narrow sympathies ought not to be required to assess the value of work done by many different types of teachers in many different directions. We want in our schools that variety which is the product of strong individuality, and it is most undesirable that there should be any attempt to force the teachers of a district into any one particular mould. Any inspector will naturally care more about certain subjects in the school curriculum than about others, and if he is able to stimulate interest in some special direction, there may be no harm in the fact that certain schools in his district reflect, to some extent, his particular tastes. If, however, an inspector is so exclusively interested in one subject, for example, hand-work, that he cannot appreciate the excellent work done by a teacher whose predominant interests lie in the direction of literature or botany, then injustice is done.

The ideal inspector must be a man of strong human sympathies and of great imagination. He must be able to realise the difficulties, temporary and permanent, under which many teachers work. He ought himself to be a man of ripe experience, who has known what it is to bear the burden and heat of the school day, and will refrain from that kind of captious criticism in which the immature sometimes wittily indulge.

Many people really seem to believe that an inspector's work is largely of the destructive kind, while surely the very opposite ought to be the case. An inspector should be intellectually superior to most of the people whose work he inspects, and in addition he has more opportunities than fall to the lot of the ordinary head teacher of seeing a great variety of methods carried into practice. It seems natural, therefore, that the head teacher and staff of a school should look forward to the visits of their inspector as occasions when they may receive helpful encouragement in the good work which they are doing and kindly, enlightened suggestions for future progress. It is hard to believe that there are any schools in which there is nothing worthy of commendation, and if all inspectors would look first for the things which they can heartily approve, their criticism of less satisfactory points would be received in a kindlier spirit than is the case when a head teacher feels that comment on the weaknesses of his school has been plentiful, but that of its specially good features no apparent notice has been taken.

The ideal inspector has been hitherto referred to as "he"; but surely one of the crying needs of the moment is for a greater number of well-qualified women inspectors. In some rural districts it may be difficult to provide for the inspection of the various departments of a school by different people, and in such cases it is likely that a man will continue to be appointed for some time to come. In all large towns, however, there is absolutely no excuse for the inspection by men of girls' and infants' schools staffed exclusively by women. If teachers who work in infants' schools are expected to have adequate knowledge of modern kindergarten methods, surely it follows, *a fortiori*, that inspectors of such schools should have had a similar training.

If the conditions here laid down are to be fulfilled, we must look for inspectors among the ranks of men and women of geniality and tolerance, who have had a wide general education and some actual experience of teaching in various types of schools. If such people are to be found—and the present writer has known inspectors who have nearly approached this ideal—let them be appointed to superintend the work of our schools, regardless of whether they are the products of our public schools and ancient universities, or whether they come as pupils or as teachers from the elementary schools.

ALICE M. JACKSON.

Municipal Day Training College, Manchester.

### The Public School Chapel.

It is Sunday morning; a bell is ringing, and the boys come trooping in to Matins. There, as they sit in rows that face one another across the chapel, what is the impression they leave upon one? Not, certainly, that of distaste for the whole proceeding; nor, indeed, that of calculated carelessness; but somehow the impression that this is all a part of the school routine. It is a disciplinary hour and a quarter sandwiched between the freedom they have enjoyed after breakfast and the walk they have arranged before or after dinner. Wherefore, patience, my brothers! Take it cheerfully, and make the best of it, just as you would of afternoon school on a hot day in July.

Not that they are not reverent; many of them are. To a casual observer the silence and the good order are impressive. But to one who spends his days in the midst of these boys, who understands their interests and their attitude, there is something wanting. There is too little keen attention, too little enthusiasm. The public-school boy, of course, is a public-school boy, and not a saint in the making; but there is no reason why the atmosphere of a public-school chapel should be different from that of an ordinary parish church. Somehow it is different! Clergymen who are in the habit of preaching to congregations of each kind know that it is so. Nowhere is there such an atmosphere of routine as in the services of a public school. Chapel is a place where a respectful demeanour is demanded—and given; from the generality you may look in vain for anything more.

Some people have the knack of storing up the impressions of their boyhood. Let each headmaster, clerical or lay, throw himself back, if he can, into the past. As a boy, say, of fifteen, did he not find the services of his school chapel wonderfully dreary? Perhaps a stray preacher came who interested him: perhaps he responded to some familiar psalm or hymn; for the most part, we doubt not, he was heartily glad when the Sunday Matins were over.

At the root of the matter lie the number of the services and the length of the Sunday Matins. People in ordinary life do not go to church twice each week-day; there is no reason why a public-school boy should do so, since public schools are not theological colleges. These week-day services, it is true, are short. They might very well take the form of prayers in the house class-room, with perhaps a hymn accompanied on the harmonium. *Bring the school to chapel only on Sundays and on Saints' days and they will value the service more.* Secondly, the Sunday service must be shortened. As things are at present, to Matins we add the Litany, or the Ante-Communion service, and a twenty minutes' sermon. Sunday, of course, is a difficult day, and during this hour and a quarter we are keeping the boy out of mischief. But there are other ways of doing so than bringing him to God's House. From the point of view of the boy's spiritual welfare the result is discouraging. Our long Matins is giving the boy a distaste for Sunday church-going. He will connect it in future with all that is dreary and dismal.

The scope and manner of the service, too, need revision. No one would contend that the Book of Romans, for instance, appeals to the callow intellect of the middle school. Yet we doubt not that in nine schools out of ten it was solemnly read through to the bitter end in evening chapel last February and March. Those twenty small boys who sit in that front row—how much did they understand of the three somewhat difficult Psalms they have just been singing? How much, for that matter, did most of the boys in the chapel understand? It is just possible, too, that they may soon be favoured with a sermon on the "Problem of Pain" or "Free-will," or something else that will deepen their sense of mystery in religious matters.

With all this talk of revision at the present time, we look eagerly for someone who will give us a morning service for public schools. It will be reasonably short; allowing for an address, it must not last longer than forty-five minutes. There will never be more than one Psalm, or two short Psalms, and these carefully chosen. The lessons will be taken from a public-school lectionary, drawn up by men who understand the interests and the limitations of the boyish mind. There will be a hymn or two with something objective about them—none of the sentimental, introspective stuff that bulks so large in our "Public School Hymn Book." We shall not be afraid,

either, to repeat the same hymn three or four times in the course of a term, hoping that the unmusical may grasp the tune and the unthinking be made familiar with the thought. While retaining the Collects, we shall add such short prayers as may suit the peculiar conditions of schoolboy life—thanksgiving for health and strength, intercession for those at home, prayer for earnestness in work, for the spirit of kindness to others, for zeal, for purity. We must make our services bear more directly on the realities as the boy conceives them; we must make them less archaic in form, less remote from his daily life—such services as may refresh him with the sight of God, and send him back with renewed ardour to face the tasks and temptations of his daily life.

In one other direction we may make war upon this curse of routine. So long as Scripture ranks with French or Latin as a subject by which a boy may gain a higher certificate, so long as Divinity is "marked" or "examined," your earnest teacher will be denied his opportunity in religious matters. He will be apt to neglect the great realities of the religious life, and will substitute textual criticism for explanation of deeper subjects. We must do all we possibly can to differentiate this hour of school on Sunday afternoon from all other hours of the week; the first step to be taken is to remove far away all thought of the blue pencil of the examiner.

H. W. M.

#### The Battle of the Subjects.

I was in hopes that the Battle of the Subjects in school was giving way to a union: all subjects combined by reason, against the many-headed mob, who despise all subjects equally, unless they will be useful to my son in his future career. But Mr. Dyson in your July issue (p. 243) asks several questions, which seem to imply a resentment against the classical master, who is represented as a sort of devil-fish clutching the unwary. I write only to point out that if there is to be a fight between languages on their merits, German will go to the wall. It has the worst prose style of all modern languages that have any literature, both obscure and ugly; but it is useful to my son in his future career, because it contains the results of research in many departments, and because the German nation is politically important. Regarded as food for the mind, neither language nor literature can be compared with either Spanish or Italian; and for some future careers—e.g., the civil engineer and the machine-maker—Spanish will be more useful than German. A controversialist fighting against classics will not be wise if he compares German with Latin.

But why fight? With due and reasonable order there is room in school for three languages, or four if the leaving age is nineteen. Picked boys will not be on the classical side, because there will be no classical side, nor any other side, until the last stage of school career. If Mr. Dyson thinks that "the best virtues of the oral method are lost" by the time we get to Form IV., his view does not agree with my experience. On the contrary, the merits of oral work become more marked with each successive language and each successive year.

Only, of course, we need a systematic plan, and a reasonable plan. If you have modern sides, and squabbles between subjects, your aim (if any) is obscured, and you get papa on the rampage at once with his future careers. I want to ask some questions now: What is the aim of education? What is the aim of a modern side? Why were modern sides invented? What is the relation of the school to the future career? What are the principles of your time-table? Explain why each subject has the place you have given it and the hours you have given it.

Each of these might be the text for a valuable essay in THE SCHOOL WORLD, and they would have the merit of novelty.

W. H. D. ROUSE.

Perse School, Cambridge.

I HAVE before me a copy of Dr. Rouse's letter commenting on certain passages in my article on Modern Language Teaching which appeared in your July number.

In the space of a short article one is very liable to be misunderstood, but in this case many of my views are evidently diametrically opposed to those of Dr. Rouse. In other cases his criticism is well beyond the mark.

Dr. Rouse only attacks a side issue. My main theme was the teaching of modern languages, in which I raised a plea for the study of German. But I had no intention of reopening the "Battle of the Subjects." He speaks of "squabbles between subjects"; but I simply noted *en passant* some of the difficulties met with in school organisation, and touched on the relative position occupied by German and Latin.

I bear no grudge against the classics and no resentment against classical masters, although the latter generally have a profound contempt for anything outside the pale of the classics.

Dr. Rouse states that there is room in a school curriculum for three languages (and in certain cases four). Of course, if French, German, Greek, and Latin could all find their place on the time-table, there would be no question of the classical as opposed to the modern side. But I am very much afraid that for the average school such a time-table is an impossibility. At what age is the unfortunate schoolboy to begin learning three foreign languages? At what age would he be competent to take a further additional language? How many hours a week would be allotted to each language? Where would the other subjects come in? Merely to dabble in four languages provides no mental training—no "food for the mind." It is far better to confine the boy's energies to two languages, according to his bent and requirements; and my point is that German is often sacrificed and forced into the background.

Further, Dr. Rouse takes exception to my remark that "the best virtues of the oral method are lost" by the time Form IV. is reached.

May I ask him to read it again in connection with the paragraph in which it occurs? I was pointing out what a boy lost by beginning to learn a language as late as the Form IV. It is all-important to begin a language at the very outset of one's school career. The usefulness of the oral method is by no means ended by the time a boy reaches Form IV.

It is evident that Dr. Rouse has a very low opinion of German as a language and as a literature. But I am not at all sure that German "will go to the wall" if languages are judged on their merits. As a language it is an educational medium of the highest quality; as a literature there is much "food for the mind" to be found in the pages of Goethe, Schiller, and many others; there is much beauty in German poetry. To call its style "ugly and obscure" is to fail to enter into the spirit of the language.

As Dr. Rouse says, each of his questions at the end of his letter would require an essay for adequate treatment; but it is evident from the tone of his letter that he has his answers ready formed. Perhaps at a later period I may use his questions as the materials for a further article.

T. DYSON.

The High School, Nottingham.

**"English Sounds."**

It is my practice to refrain from writing a "Letter to the Editor" when a reviewer makes some statement about a book of mine with which I do not agree. In the case of the review of my little book on "English Sounds," however, your reviewer doubts the advisability of placing in the hands of the children a book on phonetics, which is a question of great importance at the present day. Speaking at Liverpool in January, on the occasion of the North of England Education Conference, I dwelt on the importance of phonetic training in English, and on this point your reviewer is evidently in full agreement with me, as are the teachers of English in ever-increasing numbers. These same teachers, however, are in some difficulty as to the methods to be adopted, and many have consulted me in the matter. As a result I have thought it best to write this book, in which I have tried to put things in a simple and interesting way, so that this inquiry into the sounds of spoken English may not be beyond the child of nine or ten, and I have added some simple pictures. Throughout I have given exercises of various kinds, so that indeed the book is not really a "text-book" of phonetics, but rather a "question-book," if I may use the term. The task of writing such a book is no easy one; it is particularly difficult to decide what should be omitted. I may not have succeeded. Others, I am sure, will produce books for the same purpose before long; and, maybe, they will be more successful. I am convinced that something of the kind is badly needed, and I am hopeful that teachers who will try such a book with their classes will obtain valuable results. The training of the organs of speech and of the ear which it calls for will lead to better speech in English, and will help the children very much when they have to acquire the pronunciation of foreign languages.

Your reviewer also says: "If we are not careful we shall have written examinations on phonetics at the very moment when we are escaping them in formal grammar." It depends on the nature of the written test whether it is harmful or not. I should have no objection if it took the form of phonetic dictation; and there are many questions in my little book which might appear in an examination paper without danger. But whether a written test be required or not, I most strongly believe in the need of an oral test. I should like a test of ability to read clearly and with good expression made a compulsory part of all school examinations in English, Latin, and Greek, as is now the case in many examinations in French and German. This would react most favourably on the teaching of all these languages, but would, of course, have the most beneficial effect in the case of the mother tongue. It seems absurd that in many of our schools at the present day English is pronounced worse than French; and it is time we put an end to this absurdity.

WALTER RIPPMAUN.

PROF. RIPPMAUN'S letter hardly touches upon the review to which he refers. The importance of phonetic training in English may be granted, and the present deplorable standard of spoken English in many of our schools may be admitted without accepting as inevitable what I for one regard as the vicious and inconsistent method of placing a text-book on phonetics in the hands of the child. That "others will produce books for the same purpose before long" is probable enough; it is to be hoped, however, that if the authors enjoy the same confidence among language teachers as Prof. Rippmann, they will seriously ask themselves whether their zeal is leading them—whether, in fact, "a test of ability to read clearly and with good expression"

is to be obtained from a child's study of a handbook on phonetics, and whether the use of such a handbook by the child has been the cause of the absurd result that "in many of our schools at the present day English is pronounced worse than French."

THE REVIEWER.

**Examinations in Geometry.**

THE Mathematical Association Teaching Committee wishes to direct the attention of examiners to the following points about geometry examinations. Many examinations already follow the practices suggested.

I. When a *construction* is asked for, it should be clearly stated, either in the question or as a general heading:

(i) What instruments may be used.

(ii) Whether the construction is to be fully described in words, or only those parts of it which are not obvious from the figure.

(iii) Whether a theoretical proof is required.

II. When the proof of a *theorem* is asked for, if the examiner wishes for an accurate figure drawn with instruments, this should be stated in the question.

III. The committee is of opinion that, in general, it is inadvisable to require that the figures for the proofs of theorems should be drawn accurately with instruments; the committee considers that such a requirement tends to waste of time, and that a neatly drawn freehand figure should suffice.

E. W. HOBSON,

*President of the Mathematical Association.*

[THE points referred to in this letter are commented upon elsewhere (p. 303).—EDS.]

**Father to the Man.**

THE terrible incident recently reported of the Cornish boys and the stranded whales emphasises the need for effective anti-cruelty teaching in our elementary schools. If such teaching is to be effective, there are two considerations which must be borne in mind. Children's cruelty is due to thoughtlessness and heedfulness. They err from ignorance of the suffering they inflict and through a desire to feel a sense of power. What is needed, therefore, is a systematic course of instruction of a practical nature by which the children will learn, not only to be kind to animals, but also how to be kind to them. They should not be taught "how many legs a caterpillar has got," but how a caterpillar enjoys its life.

S. CLAUDE TICKELL.

**The School World.**

**A Monthly Magazine of Educational Work and Progress.**

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SIXPENCE.

## "IN LOCO PARENTIS."

By C. E. SHELLY, M.D., M.A., &c.

Consulting Medical Officer, Haileybury College.

**I**T has been said that the pleasures of life are proportionate to its responsibilities; and doubtless in the case of any man fully equipped for his work, the adequate discharge of his duties—with their importance gauged, their influence foreseen, their inherent difficulties met and overcome, and their results dovetailed into a successful plan of achievement—must bring a sense of enduring satisfaction not otherwise to be attained. If this be true, the scholastic profession should rank high amongst those which provide the fullest opportunities of enjoyment. For the master of a large school is continuously confronted with a succession of problems, varying as regards their individual gravity, but never unimportant, in connection with the intellectual, moral, and physical welfare of the pupils entrusted to his care. Although the questions which come before him for solution may be roughly grouped in the three classes named above, they are, in practice, all interrelated to one another more or less closely, so that a decision arrived at with respect to any one of them will exert an influence which cannot be ignored in its relation to the whole school system.

For the most part, it is the intellectual problems—the "educational" side of his work in the narrowest sense of that word—which cause the schoolmaster least anxiety. He is, and must be, the sole arbiter in these matters, and is specially qualified to that end; and most parents, recognising the master as the expert, accord to his opinion a corresponding credence. In a somewhat less degree, perhaps, the same holds good in respect of moral difficulties, when these arise, and must do so when plain facts bear down parental predilections. In relation to certain important aspects of the physical welfare of his pupils, however, the master's position is less assured, because less defined and less capable of exact definition. Physical health has the most intimate connection with both intellectual capacity and moral well-being; while indulgence claimed on account of impaired health necessarily implies some readjustment of the normal claims of school work and of school discipline. Moreover, in dealing with

such cases, the schoolmaster cannot trust solely to his own personal judgment; he must consider the views of the school doctor; and both these experts must accord all reasonable weight to the desires of the parent who—being, as a rule, neither an educational expert nor a medical expert—can yet claim to exercise the right of finally deciding as to the treatment of his child.

It is obvious that, under such conditions, a very difficult situation might, in certain circumstances, quite easily develop; and it says much for the good sense of all concerned, and speaks well for the ability and care displayed in the management of the great boarding-schools of the present day, that charges of negligence or of improper treatment arise so seldom. The conditions of school life have greatly changed for the better in comparison with those which obtained well into the latter half of the last century; but this improvement of the school has not always secured a corresponding peace of mind for the schoolmaster. Better care of the pupil has made possible the advantages of a public-school career to boys whose relative delicacy would have practically excluded them from the rough-and-tumble conditions of earlier days; and schools therefore receive an increasing proportion of less vigorous entrants than was formerly the case. The simultaneous advances made in the hygiene and sanitation of the home has protected its occupants in an increasing ratio from the incidence of the epidemic diseases of childhood, so that a larger number of children enter school unprotected by a previous attack of such maladies; with the result, as regards the school, of an increased liability to large outbreaks, or to frequent smaller epidemics, of the commoner infectious illness.

Parents also have become in a general way more alive to what illness is, how it may be supposed to arise, and how the invalid ought to be treated, although in many cases their knowledge may amount to little beyond "knowing enough to be afraid of what they do not know." They seldom fully realise how impossible it is to safeguard every possible avenue of infection in the case of a large school representing hundreds of families—of whom not a few may be thoughtlessly or selfishly careless about rigidly observing those precautionary rules which are framed in the interest of all parents and therefore in that of

each; and they are sometimes apt to regard an extensive outbreak as evidence of almost criminal negligence, because, in a closely aggregated population of young and susceptible children, the epidemic assumes proportions in excess of anything with which they are familiar amongst the discrete households of their own neighbourhood. It would be grossly unfair to imply that the majority of parents are prone to take up such a position: the case is quite otherwise. But some do so; and in such cases their voices are apt to be specially audible and insistent; while it is a matter of common experience that those parents who are most unreasonable and pungent in their criticism are almost invariably those who are least careful in conscientiously observing the school rules against contributing to the risks of infection.

In his way, however, the exacting—and even the unreasonable—parent is a blessing in disguise. He serves to put the school authorities on their guard; he stimulates their vigilance; and his very unreasonableness indirectly aids in securing a sort of practical working definition of what is reasonable and necessary. A distinguished teacher of medicine used to tell his students that when they came to practise their profession they would find that their patients might be divided, broadly speaking, into two classes. "There will be," he said, "those who believe in you, and those who do not. The former are much the pleasanter to have to do with, but you will learn more from the others." But few schoolmasters have altogether escaped a compulsory education of the like nature, or would deny that it was salutary, however unattractive. It does at all events serve to remind them so to maintain their defences that they may prove good against attack; and to secure this by so ordering their households that any attack conducted on such lines would be unjustifiable.

A pertinent example of the serious risks which may be incidental to the ordinary administration of any boarding-school is afforded by the case recently heard before the Lord Chief Justice in the King's Bench. Its salient features from the point of view now under consideration may be summarised as follows. An admittedly delicate boy entered the school in 1908, his parents then informing the school authorities that he required special care and attention. Nothing of moment appears to have arisen in the course of his life at school until early in November of the following year, when he complained to the matron of feeling ill; his temperature was found to be raised; he was sent to bed for two days, and then resumed his school work. About three weeks later he was again ill, and the school medical officer kept him in bed for three or four days. After returning to school his appetite fell off, he became thinner, and on December 9th there developed on his left thumb a small whitlow, which the doctor subsequently opened. On December 14th the boy travelled home, wearing a mackintosh, he having packed his overcoat; he stated that he did not remember having been offered a rug on this occa-

sion. On reaching home, his appearance alarmed his parents; and he was examined by the family doctor, who found his temperature 102°; he also had some bronchitis; and a whitlow, which had been lanced, was observed on the thumb. The bronchitis yielded to treatment, and the whitlow promptly healed without further interference. On December 26th the lad's temperature was found to be 104°, and there were signs of serious septic poisoning. Two days later the right shoulder (on the opposite side of the body to that on which the whitlow had developed) was stiff, and eventually the right arm had to be amputated at the shoulder-joint owing to the result of severe bone disease—acute osteo-myelitis. The parents sued the governors of the school on account of alleged negligent treatment of their son, claiming £3,500 damages. The jury found in favour of the school, and the Lord Chief Justice, while expressing sympathy with the boy, said that no other verdict could have stood.

As regards the case recited, it should not be forgotten that there was some conflict of medical evidence as to whether the acute and serious form of bone disease which developed had its origin in the whitlow on the thumb or not. It is reasonable to assume that the verdict of the jury—which was a unanimous negative of the four questions put to them by the judge (1. Was there negligence on the part of the school doctor? 2. Was there negligence on the part of the housemaster? 3. Or on that of the matron? 4. If there was such negligence, was it the cause of the loss of the arm?)—was greatly influenced by the preponderating weight of testimony given to the effect that the whitlow was not the starting-point of the mischief, but that the whitlow and the osteo-myelitis were symptoms of the one disease, and were both due to infection by the same malefic organism which had been insidiously circulating in the boy's blood-stream from the very beginning of his illness. The charges founded on an alleged inadequate initial treatment of the whitlow itself lapsed therefore into relative obscurity.

As it stands, the verdict given in this case appears to come to this: the charge of negligence could not be sustained on the ground that there was a failure to recognise the nature of an insidious form of blood-poisoning in the earlier stages of the malady, when its symptoms are notoriously apt to be extremely vague and misleading, as well as often apparently trivial in character; and the treatment of the boy in question by housemaster, doctor, and matron was neither negligent in itself nor "the cause of the loss of the arm."

Although the school is to be congratulated upon the successful issue of the case, everyone will realise the strain and anxiety, to say nothing of the cost, which such proceedings necessarily entail; and the question naturally arises by what means can a school secure for itself a reasonably certain assurance against becoming involved in disputes of this kind. Of course, human nature being what it is, no absolute protection can be

guaranteed; none the less, it should be possible to reduce these risks to a minimum which can be faced with equanimity.

The problem may be taken to present two sides, which for convenience may be termed its domestic and its medical aspects. Under the former head would be included such essentials as a satisfactory condition of the school itself, in regard to the sanitation of its buildings and their appurtenances; a pure water-supply; a hygienic system of drainage and sewage disposal; the consistent exercise of reasonable care in safeguarding its inmates from infection, and their homes from infection *via* the school; the provision of a suitable and sufficient dietary, with due care as to the quality of all the food provided; adequate (which does not imply ostentatious) supervision of the pupils by their masters; and a healthy regulation of all the details of the school life.

Amongst the "medical" requirements may be specified—in the case of every large school, at least—the appointment of a resident medical officer, to whose opinions and advice upon all matters within his province due weight is accorded; and the provision of the necessary accommodation for dealing with illness—including an adequate infirmary for ordinary cases and a sanatorium for infectious cases, properly designed and equipped to this end, with the necessary matrons and nursing staff. It is not requisite to enlarge on these details—as to which a considerable amount of useful information may be gleaned from the well-known "Code of Rules for the Prevention of Infectious and Contagious Diseases in School," published by the Medical Officers of Schools Association.

Assuming that, in regard to the points just enumerated, everything is as it should be, attention may now be more particularly directed to certain points in the relationship which exists between what may be termed the "medical administration" of a school and the parents. For we believe that here, if anywhere, will be found the real danger zone; that here it is that misunderstandings, sometimes fertile in mischief, are most apt to arise between the parent on one hand and the school authorities on the other; and that in this connection the practice of a few simple common-sense rules will prove to be of incomparable value.

The school medical officer first comes into official relationship with the new boy when the latter is submitted to the physical examination which should invariably take place on the entrance of every pupil. The information gained at this examination not only stands as a record of each boy's physical condition at the time, and so serves as a standard by which his future progress or recession may be gauged; but, supplemented as it is by the statements regarding his health and physique which appear on his entrance certificate, it also shows what was then the parental opinion as to his health or delicacy, and furnishes information as to his previous illnesses and some indication of his family history. Thus, from the date of

his entrance, the physical qualifications of each pupil, as reported by his parents, are checked by the examination carried out by the school doctor; and both the latter and the housemasters learn, from the beginning, whether they have to deal with a youth of at least average robustness, or whether, on the other hand, some special precaution, exemption, or restriction is required in his case; or whether, again, it is necessary to exercise particular supervision in view of the possible development of some latent source of ill-health. Their position in relation to these matters is, in the circumstances described, far stronger and more definite than could be the case if it depended only upon such statements or warnings as the parent alone might have furnished; for some parents are curiously ignorant regarding quite important details of their children's health: some are excessive or needless alarmists, and there are also those who appear to be almost indifferent—until a neglected condition has developed into one of momentous gravity. Housemasters, form-masters, and matrons must be always keen to observe signs of failing health or flagging vigour; and every boy thus noted should be made to report himself without delay to the doctor, either directly or through the matron. This rule should be strictly observed, and adherence to it does not in practice tend to foster a morbid self-consciousness on the part of the pupil. Real malingering is extremely rare amongst healthy children, and the "shirker" is never likely to secure approbation or popularity amongst his schoolfellows.

Save as regards trivial and quite temporary ailments, the parent should be informed whenever accident or illness necessitates an intermittence of his son's school work; and the patient's condition and progress should be reported at suitable intervals, according to the nature and severity of the case, throughout the illness. It is quite true that the first intimation of the most trivial and short-lived ailment may bring an over-anxious parent down to the school at once. But when he or she (it will more often be the latter) has realised that things are not a whit worse than they were described to be, she will be both relieved and reassured. For, without doubt, a prompt frankness and accuracy in these matters is by far the best, as it is the most sensible, course to pursue; and when a school has established a reputation for describing things as they are, neither more nor less, the confidence of the most nervous parent—who is always apt to suppose that she has been told only the best, and that the worst has been kept back from her—is already more than half won. In so far as the housemaster's reports to the parents relate to the condition and progress of their invalid child, they should be as lucid and *as terse* as possible. It is of the greatest importance that the nature of the illness or injury and the condition of the patient be described *in the exact words used by the medical officer*. In more than one instance serious trouble and misunderstanding have resulted from a housemaster yield-

ing to some kindly intention in expanding or modifying a phrase used by the doctor. Except in trivial cases, it is almost invariably best to employ the precise technical terms descriptive of the illness; and it is equally unwise for the house-master to render this into what he believes to be its vulgar equivalent, for he may, in doing so, beget an unjustifiable optimism, for instance, in a serious case. If the terms used are not understood by the parent, he will be likely to ask their meaning of his family doctor; he has at all events been told the truth, so far as it is known; and if the family adviser infers that the ailment is a serious one, or that it may be more likely than usual to prove so in the case of the particular individual concerned, he will probably communicate with the school medical officer. In this way an important step towards the sharing of responsibility will have been taken; and in any case, the special information as to previous history and constitutional tendencies derivable from such a source cannot but be serviceable.

Whenever a parent seems nervous or anxious about his child, though the ailment may be only a trivial one; and in every case of illness which is grave, obscure, or likely to prove of a tedious character; or whenever, though slight in itself, complications may be expected, the medical officer should make a rule of clearly informing the parents that if at any time they should desire to secure a second opinion, he will be most happy to meet their wishes; though he is quite justified in adding (in any case in which he feels that he can do so) that he would not feel called upon to urge this course at the moment, since the progress of events involves nothing unusual so far, and the patient is doing well in the circumstances. He would further say that he will at once inform them should he see any cause for anxiety, since he believes that a consultation is likely to be of most value to the patient if it be held without avoidable delay whenever it does seem desirable. Such a statement is best made at the earliest opportunity and almost as a matter of routine—on the occasion of the first interview with the parent, for example. It clears the ground, as it were; it sets both parties at their ease on a subject which each might otherwise feel some diffidence in broaching, and it avoids a possible cause of subsequent reproach or regret. The parent rightly takes it as very practical evidence that the welfare of his child is the real subject of concern with all; it disarms a possibly latent hostility; and it has often, by itself, served to convert a hostile critic into a benevolent ally; and, at one move, the rejection equally with the acceptance by the parent of such a suggestion transfers the main responsibility for the future course of events from the school authorities to the shoulders of the parent, while at the same time accommodating rather than antagonising their relative positions in relation to the latter's child.

On the other hand, should a parent desire such a step to be taken, his wish should be readily acceded to without any demur (because it is his wish, and the patient is his child, if for no other

reasons), however unnecessary it may seem (and may be proved) to be. The consultant's confirmation of the views held by the school medical officer will only establish the latter's position the more firmly, while securing him the parent's respect and confidence in the future conduct of the case.

The difficulties which do from time to time arise in connection with securing the welfare of the pupil without sacrificing the claims of the school or irritating the susceptibilities of the parents should be capable of prevention. On the assumption that the school is what it claims to be as regards efficiency, administration, and equipment, we believe that such difficulties can be most certainly avoided by the school authorities invariably showing that they are anxious to take the parents into their confidence from the beginning, and by treating them throughout quite openly, with frankness, accuracy, and tact, in regard to all such matters as those with which we have been dealing. At all events, if conducted upon the lines which have been sketched out, however grave may be the issue of a case of accident or illness, the school authorities will be able to review the course of events with a clear conscience, and—in the improbable event of such a necessity arising—will be assured of meeting a jury of their countrymen with a good case.

#### ENGLISH TEACHERS IN EGYPT.

READERS of THE SCHOOL WORLD are accustomed, probably, to the annual appearance of advertisements of vacancies for teachers of English and English subjects in secondary schools under the Egyptian Ministry of Education. It is, perhaps, not so generally known that there exist in Egypt other secondary schools, not Governmental, but nevertheless sound going concerns, which also employ such teachers. For example, there are the Coptic school, at Cairo, and the secondary school at Tanta, the largest city in Egypt after Cairo and Alexandria. At present the Ministry of Education has three secondary schools in Cairo, and two in Alexandria, and it is strongly rumoured that one is about to be created at Assiout, a town to the south of Cairo, and about 235 miles up country. Of the non-Government schools there are, perhaps, eight or ten. Now at present about half the population of Egypt is illiterate; but the demand for education is well on the increase. The applications for admission to secondary schools usually outnumber the vacancies, while the average Egyptian student comes to school to work, and does work. An increase may, therefore, be expected in the number of schools, and it certainly seems that there are prospects in this most interesting country for young and competent English teachers who wish to see something of the world.

To secure an appointment in a Government school, a candidate must be a university graduate in honours. He has also to pass a searching medical examination in London. The initial salary

is £24 *per mensem* (equal to about £295 a year), and there is an excellent prospect of rising to at least £45 *per mensem*. There are still higher posts, and service is crowned with a pension. New teachers go through a probationary period lasting for a *minimum* of one year, and a *maximum* of two, during which they are required to pass an examination in elementary Arabic. The passing of a more advanced examination later is not compulsory, but greatly helps one's advancement.

Admission to the staff of a non-Government school, particularly if it be in a provincial town, is naturally easier. Life in Egypt outside Cairo or Alexandria is less attractive to the majority. Then the necessary academic qualifications are not so high; there is no medical examination; and the initial salary is lower (£20 *per mensem*, approximately £20 *ros.* of our money). Pension schemes are still quite in the air. For appointment to any secondary school, under the Ministry or otherwise, previous teaching experience is now practically essential. Among English staffs may be found both university graduates and elementary-school teachers. Be it understood that in this article I am speaking only of secondary schools; openings for Englishmen do not exist in Egyptian primary schools.

Of the headmasters of the five Government schools three are English and two native; elsewhere a native headmaster (often called a "director") is the invariable rule. Here I may say that my post is in a non-Government school. We work entirely on the Government lines, use the same syllabus, and have exactly the same type of pupil.

As regards the subjects taught by Englishmen, Egyptian schools are just now in a transitional stage. The tendency is to have as much as possible done in Arabic. Apart from the English language itself, the subjects taught in our language were formerly history, geography, mathematics, science, and drawing. Mathematics are rapidly passing into native hands; history and geography are following suit more slowly, the speed of the process depending on the supply of competent native teachers, or of Arabic-speaking English teachers. Egyptians qualified in science are as yet so few that this subject will certainly remain in English hands for a long while yet. English will continue to be taught by Englishmen, or, let us say, by Britishers; but I may remark, parenthetically, that a very decided Scottish, Irish, Cockney, or provincial accent does not improve a candidate's chances of selection. The scholarship level of the syllabus is not high, the English for the last year (the fourth) being about on a level with that for our Junior Cambridge Local, and including a play of Shakespeare and a standard work of fiction. The public examinations for certificates include oral tests. Much importance is attached to composition and dictation. From an educational point of view the syllabus is not an ideal one, the utilitarian flavour being too pronounced. The course is arranged very largely with a view to the pro-

vision of young men suitably equipped for clerkships in Government departments; and such a position is the goal of most young Egyptian ambitions.

Ahmed Kassim is naturally a very different fellow from Harry Jones. By the time he enters the secondary school he has usually made up his mind about his future. He reads the vernacular journals, and is an amateur politician, while Harry Jones holds views on the "Probables" and "Possibles" for England's Test Match team. Probably he is a Nationalist, perhaps a subscriber to the faction funds. I have even been told by a pupil, who had no personal animosity against me, that the Egyptians intended to drive the English into the sea. Politics apart, Ahmed's interests are few, but thorough. By this I mean that he seldom has a hobby; he is not a naturalist, or handicraftsman, or even a stamp-collector. But on civics and economics he is much stronger than Harry Jones; and his knowledge of his own language and literature is such that a failure in Arabic in the public examinations is a very rare occurrence. He is full of saws and instances, replete with proverbs and precepts. I get quite tired of being told in compositions that one thing or another "enlarges the mind and is good for the intellect." At quite an early stage the Egyptian lad is made to learn portions of the Koran by heart. Generation after generation have gone through this, with the result that Ahmed has a tremendous memory. He wants to get up everything by heart. To counteract this vicious tendency is one of the biggest tasks before the English teacher. Ahmed likes to be given *notes*; great chunks of notes, which he carries about in a fat portfolio and learns *verbatim*. I have often found him doing it, walking along the paths by the canals, European dress discarded for flowing *galabeah* after the day's lessons, a sheaf of "jellied" papers in his hand, his lips moving in an interminable mutter. This parrot-like method is not conducive to thought; but you *can* make Ahmed think, and put two and two together—it is difficult, but it can be done. And you can persuade him of the intrinsic interest of a thing apart from examinations; e.g., I have had quite a good time with a class over the battle of Thermopylae.

A class may be of any number up to forty. The age of the pupils is anything up to about four and twenty, but efforts are being made to exclude pupils much beyond twenty from first- and second-year classes. A sprinkling of married men may be expected. Given a reasonably competent teacher, any disciplinary difficulty that there may be arises from Ibrahim's perhaps imagining that he is not getting a fair share of attention, or from a question having been put to Mahmoud about which Mustapha and Mohammed and Ali all wish to show off their vast knowledge. Now and again Dawod sneaks of Hassan: "He is saying to me bad words, sare." If a fellow gets very obstreperous, you can have him removed by one of the school officers, and the headmaster will deal with him. Corporal punishment is never inflicted, and teachers do not usually set impositions. Often any fractious-

ness that may appear arises out of causes with which the teacher has no concern, and he need not expect to be bothered in an Egyptian class-room if he bears in mind that he is not dealing with English pupils, and that in many respects Ahmed is just a big child. Being on the whole a very serious-minded person, he is not ready to torment a master in the way that an English schoolboy will if opportunity offers, and the master seems to be "asking for it." Ahmed wants to get on with his work. If for any reason he feels dissatisfied he may try to make things a bit difficult for the pedagogue, but "ragging" in the class-room for its own sake is not much in his line. And if a class like a man, they make the fact clear to him.

The hours are very easy from a home point of view, as one is seldom required to give more than twenty lessons a week of fifty to sixty minutes each. But the strain, mental and physical, is much greater, and the correcting work is very heavy, much more being thrown on the teacher himself. Very little is asked of a man apart from his class work. He is judged by results. His business is to shove his pupils through the two Government examinations that mark the four years' course. Meanwhile, he drees his own weird, not much overlooked by headmasters and inspectors. Annual summer leave lasts from two and a half to three months in a Government school; elsewhere one gets nearly four.

## APPARATUS FOR THE TEACHING OF GEOGRAPHY.

By B. C. WALLIS, B.Sc., F.C.P., F.R.G.S.

### II.—WORK IN THE CLASS-ROOM.

**G**EOGRAPHICAL apparatus for use in the class-room consists very largely of maps, globes, pictures, and lantern-slides. It is not intended here to deal largely with wall-maps, but the reader may be reminded of the Oxford wall-maps issued by the Clarendon Press, which were noticed in *THE SCHOOL WORLD* for February, 1910 (p. 72).

With reference to hand-maps, it may be pointed out that the outline-contour maps referred to in the earlier article (*THE SCHOOL WORLD*, August, 1911, p. 290) are of use in the class-room as well as out-of-doors. For class-room work the new outline-contour maps of continents, such as Asia and Africa, of countries such as Germany, England and Wales, as well as a map of the basins of the Rhine, the Danube, and Po, which comprise the "Visual Series of Improved Contour Outline Maps," published by Messrs Philip (1), are good. The maps are printed on unglazed paper, and show by means of continuous lines, thin broken lines, and thin dotted lines the different elevations of land, and it is suggested in the little handbook, "How to Use Contour Hand-Maps for Class Teaching" (1 b), issued by the same firm, that the children may colour the maps with varied tints of the same colour, and use them as a basis for practical exercises in measurement,

on the configuration, rivers, situations of towns, &c., of the various districts. The maps are printed without parallels and meridians, and a useful exercise for the pupils would be to put in several of the more important of these lines, using the scale of the map as a basis for this work. Rivers and railways, isotherms, &c., may be added on the maps, so that the child may make a set of maps for his own future use. Teachers are advised to secure specimens of these maps and to compare them with the coloured contour maps such as those in the Diagram Series, issued by the same firm (1 c), or with those issued by Messrs. W. and A. K. Johnston (2), where contour intervals are coloured to show sea depths as well as land heights.

Messrs. Bacon's hand-maps are of the same kind as Messrs. Philip's new maps, with the exception that the rivers are shown and the contours are given for more numerous intervals, while the subject-matter of the maps is related to the regional rather than the political treatment of geography. For example, there is a map of Central Europe which shows sea and land contours with nine intervals, another of the Rhone basin with seven intervals, a third of the Mediterranean with eight intervals and three sections, and a fourth of South-east England in connection with the Continent with eight intervals, and, to mention only one other, an excellent map of the basin of the Hudson and its junction with the St. Lawrence. The choice of the area in these latter maps suggests a possibility of their use for the purpose of lessons in historical geography and on the geographical control which has determined, within limits, the march of historical events.

In *THE SCHOOL WORLD* (April, 1910, p. 147) attention was directed to a large relief model of the earth made by Mr. G. R. Gill (4), which was exhibited at the Japan-British Exhibition. From this globe have been made contour relief maps to produce the effect that would be expected if we found it possible to look at the earth's surface from a position in space. These maps are unbreakable and light, and should recommend themselves to teachers, as they serve to correct and amplify the ideas of relief formed by children from the study of orographical maps. Teachers should write for an illustrative leaflet describing these maps.

Most teachers know Messrs. Bartholomew's "Atlas of Meteorology," the "Survey Atlas of England and Wales," and the "Atlas of the World's Commerce," issued by the same firm (5), but it may not be well known that the firm is willing to supply to teachers the sheets of these atlases, or selected specimens in sheet form, instead of in book form, so that they may be used for practical exercises in the class-room. A companion volume to the "Atlas of Meteorology," the "Atlas of Zoogeography," is now ready.

With regard to lantern-slides, attention may be directed to the enterprise of the Diagram Co. (6), which has manifested itself in two directions. First, the company is issuing slides showing views,

and either on the slide itself or on a separate slide, issued in connection with the series, a map of the district is included on which is located the spot from which the photograph was taken. This is a great advance, and in itself enhances the teaching value of the series of slides, many of which are made from photographs which are inaccessible in the ordinary market, and for which the company is indebted to the kind interest of many well-known travellers, who have made it possible for their photographs to be utilised in school work. The second improvement in this connection lies in the Diagram Co.'s system of making a lending library of these map and view slides for the use of teachers, so that under certain conditions teachers may obtain the use of slides not for one day only or for one lesson, but for a week. To facilitate choice, the company has ready photographs of each slide, and these are sent to the would-be hirer on application, so that he may make his choice of the exact illustrations he may wish to use in his lessons.

The slides prepared on India, &c., at the instance of the Visual Instruction Committee were noticed in *THE SCHOOL WORLD* (September, 1909, p. 321), and since then two handbooks have been issued in connection with the set on India. One of these is published by Messrs. Newton (7), and the other is published by Messrs. Philip (1). In both cases we have the text of the lectures to accompany the slides written by Mr. H. J. Mac-kinder. Messrs. Newton's book gives the numbers and the titles of the slides in position in relation to the lecture, and Messrs. Philip's book shows in the text illustrations of some of the more important pictures and maps.

Messrs. Flatters and Garnett (8) have shown in their sets of slides on British plant associations the class of vegetation which is to be found, for example, on moors, on clay and sandy soil, and on calcareous soil, while the same firm has the illustrations of the "Geological Field-book," noted in the first article, ready for hire in the form of lantern-slides.

Most teachers are aware of the difficulty they find in connection with the use in class of post-cards and view illustrations taken from books and magazines, and will welcome an instrument which enables them to project such pictures on a screen so as to be seen by the whole class at once. A cheap instrument of this class is the Mirroscope, which is issued by Messrs. Carr Bros. (9). In its present condition the form of Mirroscope for use with electric light can be used for an ordinary-sized class, provided the picture is projected from behind on a transparent screen. The postcard is fitted into a carrier illuminated by electric light in a closed box, and projected by an arrangement of lenses which is capable of being focussed to give sharp definition on the screen. Teachers who are lucky enough to have electric light in their school will find that in an ordinary class-room which is fitted with dark blinds they would be able to reproduce views of sufficient size for the features to which they desire to direct attention to

be visible from the back and sides of a class of about thirty pupils. The Mirroscope costs in this form either £2 or £3, and a transparent screen can be obtained from the agents.

For more elaborate work of the same kind, the Balopticon (10) is more useful, as with it we can project illustrations and microscopic objects, in addition to lantern-slides. Naturally, this instrument is more expensive. The makers advertise models from £6 2s. 6d. upwards. Teachers who are interested should write for particulars.

In connection with pictorial apparatus, the geographical pictures by Messrs. Black (11) have been noted in previous issues of *THE SCHOOL WORLD* as the different sets appeared. The latest series consists of twelve pictures on valleys, with the usual descriptive text. There are pictures of U-shaped and V-shaped valleys, dry valleys, and a noteworthy picture of a cañon in horizontal clay from Ireland, which is an example from our own islands of the typical cañon formation. It may be pointed out that the value of these pictures would be greatly increased for class purposes if the children were also provided with contour maps of the district showing the position and the direction of outlook of the camera, as is done in connection with the slides noted above.

Either in actual class-work or as optional home-work, it will be found that a valuable exercise arises in connection with the making of relief models from cardboard by the layer system. Teachers who are not familiar with the method can obtain from Mr. Edward Stanford (12) a set of cardboard layers which is self-explanatory. The ingenious boy will feel the need for filling in the stepped layers, and will try plasticine or, better, plaster of Paris, and thus produce a trustworthy model from a contoured map. This system may be extended in correlation with the work of the art master by building a large model on the layer system in clay, and then working this to show the smoothed slopes.

(1) Messrs. Geo. Philip and Sons, Ltd., Fleet Street, E.C.: (a) "The Visual Series of Improved Contour Outline Maps." 1d. each; cheaper prices for quantities. (b) "How to Use Contour Hand-Maps for Class Teaching." By J. A. White. 8 pp. 6d. (c) Diagram Hand-Maps. 1d. each.

(2) Messrs. W. and A. K. Johnston, Ltd., Edinburgh.

(3) Messrs. G. W. Bacon and Co., Ltd., 127, Strand, W.C.: "New Series of Contour Hand-Maps." 1d.

(4) Messrs. George Gill and Sons, Ltd., 13, Warwick Lane, E.C.: "The Nature Maps." The continents separately, 25s. each.

(5) Messrs. John Bartholomew and Co., the Edinburgh Geographical Institute, Edinburgh: "Atlas of Zoogeography." £2 12s. 6d. net.

(6) The Diagram Co., West Barnes Lane, New Malden, Surrey.

(7) Messrs. Newton and Co., 3, Fleet Street, E.C.

(8) Messrs. Flatters and Garnett, Ltd., 32, Dover Street, Manchester, S.E.

(9) Messrs. Carr Bros., 11, Queen Victoria Street, E.C.

(10) Bausch and Lomb Optical Co., 19, Thavies Inn, Holborn Circus, E.C.



(11) Messrs. A. and C. Black, 4, Soho Square, London :  
 "Geographical Pictures." Series X. Valleys. By S. M.  
 Nicholls. Two sets, 6d. each.

(12) Mr. Edward Stanford, Long Acre, W.C.

## TOLSTOY'S EDUCATIONAL THEORIES.

By HELEN M. WINGATE, M.A.

WE are accustomed to think of Count Leo Tolstoy as a literary artist of the first rank, however we may differ from some of his expressed views; but perhaps it would be extravagant to claim for him a foremost place amongst those who have notably advanced the cause of education. Yet the views and experiments of such a man cannot fail to be interesting, although he has himself thrown much contempt—not wholly deserved, I think—on his earlier writings on this subject.

Tolstoy's immediate desire was to establish schools for the peasants in the neighbourhood of Yasnaya Polyana, his own ancestral estate. He travelled in France, Germany, and other European countries to study the methods of education then in vogue, and was indefatigable in his search for ideas. The conclusions he reached were: (1) "That the only method of education is experiment, and the only criterion freedom"; (2) "That all instruction should be simply a reply to questions put by life." These two principles he endeavoured to carry out in the schools he afterwards founded.

The school on the Yasnaya Polyana estate, which was under Tolstoy's personal supervision, and to which, indeed, he devoted the greater part of his time for some years, was a mixed one, but, by their own choice, the boys and girls generally kept separate. There were no rewards and no punishments, no rules and no time-tables. If the children preferred to be late, or even not to attend at all, no notice was taken. If they got tired of a lesson they said so, and some other subject was taken up; they were allowed to sit where and how they liked, and to talk, laugh, or interrupt at pleasure. Discipline, according to Tolstoy, is merely a device for saving the teacher trouble. He had noticed in all the schools he visited what he describes as "the school state of mind" of the children. The same children who were bright, interested, and full of questions at home, or in the fields, or in the streets, seemed proof against all enthusiasm for knowledge in school, encased in a sheet-armour of indifference and aloofness, either entirely refusing the instruction provided for them or absorbing it under compulsion, to throw it off as soon as the compulsion was removed.

Disciplined behaviour is unnatural to children, and whatever is unnatural militates against education in the true sense of the word. Such quiet as is necessary for the children themselves will be enforced by themselves provided their interest in the lesson is sufficient. If their interest is not sufficient, it follows that the instruction given is not an answer to the questions set by their life, and that some change should be made in the course of

study. No child is ever to be reproved for a want of understanding.

Anyone who has had experience of teaching, however slight, will sympathise with Tolstoy's occasional failures to live up to his own ideal. Once he asked a boy the question: "If you have five rolls given you and eat one of them, how many have you left?" The boy could in no way solve the problem, and Tolstoy pulled his hair. This incident is quoted to prove the failure of his system, but does not seem to prove anything except that old, undisputed truth, that "to err is human." We also learn with regret that he had to abandon his methods in the case of his own family.

Perhaps too much has been made of the fact, already alluded to, that Tolstoy himself abandoned his theories, and dropped his school work entirely. As men grow older, the "years that bring the philosophic mind" take from them much that is of infinite value to the world:

Whither is fled the visionary gleam?

Where is it now, the glory and the dream?

Only a young man could have undertaken this form of pioneer work, only an enthusiast could have succeeded; but we must remember that the dreams of one century are often the commonplaces of the next. A man like Tolstoy gives the world an idea; it is for others to follow it up, to separate the chaff from the wheat, and to see how much can be made practicable of what was to him an inspiration. He was a literary man; education was to him merely a side issue; that he did not persevere only shows that he did not, and could not, sink his genius in mere pedagogy.

At first sight one is inclined to conclude that a school worked on Tolstoy's lines could be nothing short of a pandemonium, but in fact his experiment seems to have been almost entirely a success. The children were eager to come to school and to learn such things as they were interested in. The chief difficulty lay in securing any advance in such purely mechanical subjects as reading and writing. The incentive to these was only to be found in the acknowledged necessity for acquiring them as an aid to the attainment of other more interesting information. As they became ambitious to know more, they recognised the importance, as means to an end, of certain instruction they had before been inclined to reject. Reading and writing are not an answer to the "questions set by life"; they merely supply the key to locked treasures—a key which seems valueless to those who do not know how to use it. Ruskin does not consider it necessary, or even desirable, for everybody to learn to read, but thinks many branches of education more fruitful; and we can hardly say the intuition of children is at fault if it leads them to the same conclusion as one of our greatest thinkers. Is it not possible that they know what to absorb and what to reject in the way of mental food, just as animals are credited with the same instinct the matter of physical nourishment?

Now, of course, these ideas and experiments of Tolstoy's are by this time ancient history.

Education has advanced by leaps and bounds since 1860-70, when the greater part of his work was done. We do certainly now allow our children more freedom than would have been thought orthodox in those days, and something very like the Yasnaya Polyana system seems to work well in America, where far less compulsory discipline exists, and more is left to the pupils themselves and their zeal for learning. The more freedom is given to the scholar, the more difficult the work of the teacher becomes; and without agreeing with Tolstoy's idea of discipline, we may, perhaps, admit that some meaning lies behind it. He goes so far as to say that schools should be judged by just this standard. The limit of freedom is naturally defined by the capacity of the teacher, and the efficiency of a school is exactly proportional to the amount of freedom that can safely be allowed the scholars. Tolstoy himself seems to have had an extraordinary influence over children, and to have shown rare tact in their management; and perhaps one might urge that to staff such a school we should have to discover a further supply of those "laborious archangels of private means" who, Lord Lansdowne once said, were required by the Government for other offices. (In the Yasnaya Polyana school there were four masters to about thirty or forty pupils.) But all reforms are difficult, and in education, also, "a man's reach should exceed his grasp."

The question is not yet authoritatively settled whether children are sent to school to learn to do what they do not like, or to learn to like what they ought to do, but surely a little reflection will incline us to the latter alternative. No work that is not done willingly can be worth very much. The mediæval ideal of self-denial for self-denial's sake, the Buddhist theory of acquiring merit, are alike inferior to the example put before us in the words, "The Lord loveth a cheerful giver." Surely the man who enjoys doing a kind action is on a higher plane of character than the man who does it unwillingly, because it is his duty. Which of the two should we prefer to go to in need?

Then the highest motive one can have for doing anything that is good in itself is that one loves the doing of it: the highest motive a child can have for learning is the love of learning, and if we could send out children from all our schools imbued with the love of learning, and the desire for the pursuit of knowledge, it would matter comparatively little whether they knew anything or not. And if we could only by any means preserve that zeal in tackling the questions set by life, which is the characteristic of very young children, I feel sure that half the difficulties which confront the educationist would disappear.

The teacher should not, then, be a military despot, but a guide to an Eldorado which the children seek with enthusiasm—a kind of Pied Piper leading them

to a joyous land

Where waters gushed and fruit-trees grew,  
And flowers put on a fairer hue,  
And everything was strange but new.

The method of experiment is out of repute amongst educationists of the present day. We have profited by the experiments of others, and now that secondary education also has become the business of the State, there is more and more a tendency to have everything settled according to fixed laws. Curricula and time-tables are drawn up on the best lines; teachers are trained in psychology and class-management; and inspectors are there to see that all things are done decently and in order. Experiment is ruthlessly discouraged, and yet surely no one would maintain that the science of education has quite reached, or ever will reach, the stage at which no further experiment is necessary, as no new discoveries can be made. Every new child that is born into the world offers an unlimited field for fresh discoveries. Cessation of growth is the first sign of decay, and to rest, even on apparent perfection, is to incur the danger of slipping backwards. Perhaps a more catholic spirit in educational matters would lead us to give more encouragement to individual efforts. As Kipling says:

There are nine and sixty ways of constructing tribal lays,  
And every single one of them is right.

May there not be more than one way in education? There is perhaps no work where freshness and spontaneity are so essential as in the education of the young. Children themselves can teach us much if we will but learn of them; their infinite variety puts to shame anyone with a preconceived notion of what is to be expected of them. I cannot help hoping and thinking that the ideal school of the future will be, not an institution where many well-meaning grown-up people spend their time, energy, and patience in trying to fit the proverbial round peg into a square hole; but a place where old and young shall learn together, and have a foretaste, in at least one particular, of the time when "a little child shall lead them."

#### PHYSICAL TRAINING IN SECONDARY SCHOOLS.

THE need of some provision for safeguarding the gymnast must often have occurred to the thoughtful spectator when witnessing displays of specialised athleticism as they are still too commonly practised, and contrasting the conditions under which they are too often carried out with those which obtained when first the term was coined and gymnastics meant appropriate exercise of the body, untrammelled by clothing, in the open air. Fortunately for all concerned, we are now beginning to realise that the development of certain limited groups of muscles to a relatively exceptional degree by means of constantly repeated routine movements carried out in the sunless, dirty, and often vitiated atmosphere of a closed room may easily produce results more harmful than healthy in the end, and without any advantages to the general health or usefulness of the individual.

Circular No. 779,<sup>1</sup> recently issued by the Board of Education, should be of real value in this connection, for it contains not only some emphatic warnings against the evils of energy misdirected and misapplied, but gives also useful directions for securing the best results in this branch of physical training. In the first place, it is clearly pointed out that the regulated and progressive practice of muscular movements entails a corresponding development of the associated elements of the nervous system; so that physical training—of the right kind—ensures a corresponding growth and development of the brain as surely as it promotes health and strength of body; and thus aids, in very practical fashion, in the development of mental power and in the formation of character. In other words, a proper system of physical training must be regarded as one of the most important essentials in any rational system of education, promoting, amongst other effects, the unconscious acquirement of habits of discipline, obedience, ready response, and self-control, besides assuring to the organism that healthy vigour which favours mental and intellectual activity.

Such considerations emphasise the prime importance of so planning the exercises as to secure a harmonious and all-round development of the muscular system, since this implies the stimulation and development of as many nerve-centres and the opening up of as many nerve-paths as possible, while making the training at the same time enjoyable and interesting, so that its recreative effect (one of great value) may be realised to the fullest extent.

For these reasons in particular the Board strongly recommends the Swedish system of exercises (Ling's); they are given a definite form, so as to be under definite control by the teacher; their gradational character allows them to be suited to all ages and degrees of strength, securing an even development of the whole body, with the maximum effect, without undue strain or fatigue. Although the system can be carried out without employing any special apparatus, in its complete form a certain amount of apparatus is needed; but this is simple in design, relatively inexpensive, and occupies the minimum of space. A good introduction to the Swedish system is supplied by the Board's Official Syllabus of Physical Exercises. The arrangement and fitting of gymnasia, the qualifications required of the teachers of physical exercises in boys' and in girls' schools, and the relation of the school medical officer in relation to physical training are also dealt with in the circular. Thirty is recommended as a suitable number of children for instruction by one teacher in a single class. In a class including less than eighteen or sixteen pupils, much of the class spirit is lost, and a class above thirty is too large to permit of the teacher giving sufficient individual instruction.

The training for a fully qualified teacher of

physical exercises should cover a period of two years, which should be spent at one of the colleges for physical training, preferably at a residential institution. In all schools from which pupils intend to proceed to the training colleges or to become teachers in public elementary schools it is important that the commands given in the official syllabus, already mentioned, should be employed for all movements to which they apply (e.g., free-standing exercises taken in the Swedish lesson), since strict adherence to the exercises and commands of the official syllabus will be required in subsequent teaching work. To the same end, a thorough understanding of the theory and practice of physical training, as set out in this syllabus, is necessary for all those pupils who intend to become school teachers.

#### PERSONAL PARAGRAPHS.

PARTICULARS came to hand too late for me to mention in the August issue the sad death of Mr. J. J. Pinches, who for some sixteen years had been a master at Wellingboro' Grammar School, and for the last four years its second master. He died in his forty-ninth year, at a time when most men are doing their ripest and best work for a school with which they have been long associated. Mr. Pinches had widely exercised a good influence on his pupils, and among other services to the school had been the first lieutenant of the school contingent of the O.T.C. He was a keen member of the I.A.A.M., and served the educational interests of his county on the county education committee, especially as a member of its continuation schools committee. He was deeply regretted in Wellingboro' and by his many friends in different parts of England.

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THE REV. ST. JOHN BASIL WYNNE-WILSON is the new Master of Marlborough College in succession to Mr. Frank Fletcher, who is to take up the reins of government at Charterhouse School.

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To Haileybury will go Mr. Frederick Blagden Malim, headmaster of Sedbergh School. Mr. Malim was born at Chichester in 1872, and educated at Blackheath School and Trinity, Cambridge. He was an assistant-master at Marlborough from 1895 to 1907.

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HE who teaches in a metropolitan elementary school *duram servit servitutem*, yet not infrequently teachers serve for forty years or more. Mr. B. Hanscomb, headmaster of Penrose Street Council School, Newington, is about to retire after nearly forty-one years' service.

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IN succession to Mr. M. J. Rendall, recently appointed headmaster, Mr. James Alfred Fort has been appointed second master of Winchester. A Winchester boy and scholar of New College, he returned to the school as a master in 1883.

<sup>1</sup> Memorandum on Physical Training in Secondary Schools, 1911 Circular 779. (Wyman.) 2d.

THE REV. EUSTACE FYFFE GILBARD did not long survive his resignation of the headmastership of Norwich Grammar School. He was educated at Christ's Hospital, and left with an exhibition in 1867, being of the same year of "Grecians" as Richard Appleton, late Master of Selwyn College, Cambridge, and J. T. Bell, headmaster of Christ's Hospital, Hertford. It is singular how close to each other have been the deaths of these three contemporaries. After his Cambridge career Mr. Gilbard began teaching at Redcar, and was appointed submaster of Norwich Grammar School in 1877, Dr. Jessopp being then headmaster. He was, after thirteen years' service, appointed head in 1890. He was one of the type of headmasters who do not seek to make a stir outside their own school, but give of their warmest enthusiasm to their particular task.

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PREVIOUSLY to Mr. Gilbard's death his successor had been elected in the person of the Rev. W. F. Brown, an assistant-master at Wellington since 1895. A scholar of Hertford College, Oxford, Mr. Brown took first classes in mathematical "Mods" and "Greats," and graduated in 1894.

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OVERWORK claims its victims, especially in days of torrid heat, in the educational profession as in others. The Rev. C. N. Nagel, who recently died in his fifty-fifth year, seems to have been one of these. Mr. Nagel was for two or three years head of the modern side of King's College School, and from 1891 to 1895 headmaster of the Hermitage School, Bath. He was appointed headmaster of St. Mark's School, Windsor, sixteen years ago. When St. Mark's was merged in the United Services College in 1906, he became headmaster of the college.

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DR. P. VINOGRADOFF, Corpus professor of jurisprudence at Oxford, has had the honour of being elected a corresponding member of the Berlin Academy of Sciences.

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MERE schoolmasters do not yet attain to knight-hoods, but we advance. Col. A. F. Hoare, of Haileybury College, was one of the Coronation C.B.'s. Col. Hoare's thirty-two years' work for Haileybury has had a fitting public recognition. It is no disparagement to him to say that many others should be in the same boat.

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At the Bedford College for Women the following appointments have been made: Miss M. W. Cooke, assistant in the department of English; Miss M. T. Fraser, demonstrator in botany; and Miss G. W. Martyn, assistant in the department of psychology.

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In succession to Mr. L. V. Lester Garland, Mr. A. H. Worrall, headmaster of King Edward VI. Grammar School, Louth, has been elected headmaster of Victoria College, Jersey. Mr. Worrall was educated at Grantham School and

St. John's, Oxford, where he took a first class in classical "Mods" and a second in Lit. Hum. Before he went to Louth he had had varied experience at Loretto, Lancing, and Bradfield.

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THE N.U.T.'s first woman president, Miss I. Cleghorn, recently received from the University of Sheffield the honorary degree of M.A. Miss Cleghorn has worked many years in Sheffield.

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AFTER thirty-three years as headmaster of Newport (Essex) Grammar School, Mr. W. Waterhouse has retired. He received handsome presentations from old boys, present boys, and staff. We have already recorded that his successor is the Rev. F. J. Wyeth, of Elizabeth College, Guernsey.

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MISS A. J. COOPER, who has been connected with the Oxford training course for secondary-school teachers for the last ten years, was recently presented with a cheque for £355, collected among old pupils of the Edgbaston High School for Girls—of which she was the first headmistress—old students of the Oxford training course, and members of the Association of Headmistresses. It is hoped she will long continue to hold her present position as tutor to the women students for the Oxford training course.

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THE successor of the Rev. H. A. Rhodes at Ardingly will be the Rev. Marchant Pearson, headmaster of King Alfred's School, Wantage.

ONLOOKER.

## RURAL EDUCATION.<sup>1</sup>

By WILLIAM ALDRIDGE, B.A., B.Sc.

Headmaster of Shepton Mallet Grammar School.

FOR some time past rural education has occupied an increasing share of public attention, but by its Circular No. 778, recently issued to county education authorities, the Board of Education has given it a great stimulus which will cause its growth to proceed at an enormously accelerated pace. Now an organised scheme of rural education appears on the horizon. The Treasury, upon the recommendation of the Development Commissioners, has decided to make an advance from the Development Fund to the Board of Education to be applied in additional grants to county education authorities in aid of agricultural education. Thus the leading industry of the country will, in the near future, be enabled to get that necessary technical instruction which other industries have long enjoyed.

The regulations under which the grant will be distributed are not yet published, but the circular sets forth the broad outlines of a scheme—necessarily an imperfect one—for immediate consideration. Some counties have already proceeded far along the lines indicated, but their efforts and

<sup>1</sup> Board of Education. Circular 778.

Report of the Rural Education Conference on the Qualification of Teachers of Rural Subjects. [Cd. 5773.] (Wyman.) 24d.

Report of the Rural Education Conference on a Suggested Type of Agricultural School. [Cd. 5774.] (Wyman.) 3d.

those of the agricultural colleges are hampered seriously because the pupils have not had the proper preliminary training.

A farm institute is postulated, which should serve as the headquarters of the staff of agricultural and horticultural instructors and for educational demonstrations and similar purposes. It should also provide accommodation for central courses of instruction in agriculture and kindred subjects. These central courses might include, for example, (i) a sixteen to twenty weeks' winter agricultural course for the sons of small farmers who have acquired some practical experience on the land since leaving elementary schools; (ii) shorter courses in dairy work, poultry-keeping, and the like during spring and summer; and (iii) vacation courses for teachers of rural subjects in local continuation courses. The buildings of an institute should include (a) an educational block with class-rooms, laboratories for students and staff, dairy, poultry stores, carpenters' and smiths' shops, &c.; and, where necessary, bee-keeping and fruit-preserving stores; (b) residential accommodation for the principal; and (c) such other accommodation as may be desirable. Suitable equipment for the educational work will, of course, be necessary, and additional provision may in some cases be required for the institution of an information bureau and a library in connection with the work of the staff outside the farm institute.

On educational grounds the Board of Education regard it as essential for the successful working of a farm institute that there should be available, and in close proximity to it, a farm and garden. These will not only be required in connection with the internal courses of the institute, but should also serve as an object-lesson to the farmers and gardeners of the country. In some cases a small holding for demonstration purposes may with advantage be added. The farm and garden should be conducted on business principles, so far as may be consistent with their primary use for educational purposes, but it is probable that such use will as a rule entail some annual deficiency upon a profit and loss account.

This is technical instruction in agriculture pure and simple, but a complete scheme can neither begin nor stop here. It must exert an influence upon the curricula of rural schools of every grade and lead up to the agricultural colleges. So far as primary and secondary schools are concerned, the problem divides itself roughly into two parts: (a) the education of the embryo employees, and (b) the education of the budding employers, land agents, and such-like. With (a) the primary schools will be largely concerned, while (b) falls mainly within the purview of the higher schools and classes.

The primary school must of necessity be concerned chiefly with the thorough teaching of reading, writing, arithmetic, and the mother-tongue, and nothing must be allowed to crowd out these essentials. In some cases some more or less useless subjects may be abandoned, and without further overburdening the already overcrowded

time-table the intelligence can be awakened and the interest aroused by observation lessons on some of the multitudinous subjects which surround the rural school. Much useful information may thus be gained without attempting to teach agricultural science under this comprehensive title. The observation lessons serve as excellent media for the practical teaching of English, and may be connected with geography, history, the growth of plants, farm operations, the seasons and their effects upon crops, and a thousand and one other topics which suggest themselves to the teacher who is in touch with rural affairs. Manual dexterity should be encouraged (including—may I suggest?—the use of the left hand), but much time and money may be wasted if subjects are attempted which are beyond the strength and capacity of the pupils.

For the proper carrying out of the idea it is essential that rural teachers shall have special aptitude and special training for their work, but this will never be obtained so long as the rural teacher has to be content with a more meagre stipend than his urban *confrère*.

In the secondary school the opportunities for utilising rural subjects as a medium for education are many more than in the primary school, and the pupils can be interested in the skilled manual work of the countryside without any undue consumption of valuable school time. (The outlines of such a course were sketched by me in *THE SCHOOL WORLD*, August, 1908.) If school children are intelligently educated on lines with a sympathetic rural bias, there will be no difficulty in the future in obtaining suitable pupils for the technical courses indicated in the circular, and the agricultural colleges will be able to do much more advanced work when properly prepared pupils are forthcoming. It must never be forgotten that the school is not and cannot be the place to teach farming; but the educational course can be and must be made a foundation for the later technical courses if the money now to be provided by the Treasury under this circular is not to be largely wasted.

Two important reports, recently issued by the Rural Education Conference, are well worthy of the serious attention of every rural teacher. The first deals with the "Qualification of Teachers of Rural Subjects." It begins by sketching the curriculum which is considered desirable in a rural elementary school, and sets forth the qualifications which the teachers should possess.

In our opinion, the curriculum in rural schools should be less literary than it is at present, and with this object in view it should be based upon the employment of manual processes as a method of education, though it should not be forgotten that the aim of practical instruction in the elementary schools should always be the general development of the faculties rather than specialised technical training. The teacher should be able to make all the school subjects real to the child by correlating them with such objects as it is familiar with outside the school, thus keeping it in touch with its environment and with what life means to it.

Remembering that in most country districts the children who have to be taught are rarely more than thirteen years of age, and that the intelligence and natural aptitudes of children of this age can be developed most effectively by observation, nature-study, and manual work, we consider that what is needed in their teachers is a broad general education allied with a familiarity and sympathy with country pursuits and character, a first-hand knowledge of plant, animal, and insect life, a sufficient acquaintance with the sciences underlying rural industries to illustrate their lessons with facts or experiments, and a skill in the use of their hands which would enable them readily to teach such subjects as gardening, woodwork, and other forms of manual instruction. In our opinion it is a matter of considerable importance that this instruction should not only be part of the curriculum of the school, but should be given by regular members of the staff rather than by peripatetic teachers, so that the children may realise that it is not a special subject, but a very important part of their ordinary teaching.

The report then summarises the history of the movement for the supply of such teachers during the last eleven years and its failure to accomplish the object sought. A more promising field is that which is being cultivated by the more far-seeing local education authorities.

Whatever efforts may be made by the local education authorities to train existing teachers, it is certain that many teachers, especially the older ones, will be averse to adopting new methods of instruction and disinclined to give prominence to rural subjects in their schools. It is therefore of vital importance to secure as many suitable teachers as possible from among the rising generation.

With this object, county local education authorities should be urged to select a large proportion of their pupil-teachers and bursars from country-bred rather than town-bred boys and girls. This can only be done by a judicious distribution of their scholarships without too rigid a regard to purely competitive examinations.

The next step is to secure a suitable early training for these intending teachers. Secondary schools equipped and staffed to meet rural requirements are an essential feature in turning out really effective rural teachers. Such secondary schools would be the very best preliminary training ground for rural teachers. The lessons of simple nature-study in the elementary-school garden will be continued and developed by the higher scientific and manual instruction of the secondary school. Such training would secure continuity in the future development of the teacher's mental and practical fitness for the work, quickness in appreciation, and assimilation of the specialised courses provided later on, which, without such careful grounding, may result in a mere smattering of knowledge. We are glad to learn that in at least one county a scheme is under consideration for giving pupil-teachers and bursars while they are at a secondary school some special instruction in theoretical and practical rural science, including the cultivation of allotments and gardens and practical bee-keeping.

Such training should be specially recognised by the Board of Education in the ordinary examination of persons intending to become teachers.

Having reviewed several ways in which the difficulty of the supply of suitable rural teachers might be overcome, the report concludes with the recommendations of the conference.

We therefore recommend:

(1) That the length of the ordinary training-college course should be extended by one year, during which teachers would be able to specialise. This third year need not necessarily be consecutive with the first two years, and those teachers who desire to take up rural subjects during this period might be allowed to do so at university or agricultural or horticultural colleges or farm institutes.

(2) That all county local education authorities should be required to provide for their existing teachers, or for such future teachers as have not attended a training college, evening, Saturday, or vacation classes, and, in connection with these classes, courses of two or three months' duration at an agricultural or horticultural college or farm institute, where the teachers would receive free instruction and their ordinary pay.

(3) That local education authorities should encourage rural teachers, both head teachers and assistants, by assimilating their pay more nearly to that obtaining in the towns.

(4) That the curriculum of rural secondary schools should be modified to include special courses in rural subjects for bursars and other intending rural teachers.

(5) That increased grants should be given by the Treasury to county local education authorities to enable them to carry out the suggestions which we have made in (2) and (3) of this paragraph.

An appendix gives the summary of the evidence of the thirteen witnesses on which the report is based. It is noteworthy that this list does not contain the name of any practical teacher having first-hand knowledge of the subject.

The conclusions of the conference are sound so far as they go, but more is required to make a complete success. The training of rural teachers must begin with a remodelled rural elementary education. More of the intending teachers must be selected from those familiar from their childhood with country life; these must be given as long a course as possible in a secondary school with a strongly marked rural bias. The science taught in the training college could easily be given a similar rural bias if it were in the hands of tutors in sympathy with the needs of rural schools. But, after all, it will be found that the greater part of the training of the rural teacher has to be obtained *after* he has taken up a post in a rural school. This will not be particularly difficult if the preliminary training has laid a sound foundation—a proviso which is not at present fulfilled. The rural teacher who is not a round peg in a square hole will qualify himself for his rural duties very soon if his financial prospects make it worth his while, but it is contrary to human nature to look for enthusiasm in obtaining qualifications for a career which condemns the holder to an inferior position with inferior pay. As Dr. Snape points out, the chief qualification required in rural teachers is enthusiasm for rural life and rural pursuits, but this the existing conditions are more likely to stamp out than to arouse.

The second report is on "A Suggested Type of Agricultural School," but the reference to the conference on which the report is based seems to have hampered the conference and precluded a really satisfactory solution. The majority of boys who

leave elementary schools at twelve or thirteen years of age will, if they engage in rural pursuits, become farm labourers, and public opinion among farmers is not yet ripe for their further education in any type of school whatsoever. They must learn their business on the farm, and the only feasible step at present possible would appear to be in the direction of small classes, chiefly on the farms, at which the labourers would be taught the "how" and, so far as possible, the "why" of their labours. The conference recognises this, and sets forth its conclusion in paragraphs 4 and 5 of the report.

• For those who intend to become farmers or small occupiers a special new type of school—a "higher grade rural school"—is recommended, but it is very doubtful whether there is any demand for such a type of school at present. Their establishment would probably be a needless expense, and would tend to accentuate the farmer's dislike for education, owing to the increasing length of his bill for rates and taxes. It would be better for some years to come, at least, to bend all energies to altering the character of the rural secondary schools and to supplementing their work by technical courses held at the farm institute and elsewhere under the auspices of the local education authority. In the course of my twelve years' practical experience I have found over and over again that a boy (even a town boy) who has worked through our rural course and has then had a year's experience on a suitable farm has become a successful farmer much above the ordinary grade of intelligence.

It is true that the conference only suggests the establishment of this new type of school "in certain districts"—presumably those districts where no suitable rural secondary school is within reach—and here they might fulfil their mission; but if it is intended to establish such schools alongside the secondary schools it will be found that the latter will suffer. In the suggested schools the pupils are expected to stay to the age of fifteen or sixteen; but experience shows that farmers' sons who are to become farmers rarely stay at a secondary school (even if of a rural type) until the lower of these two ages, and that the parents will need a great deal of persuading before they will be brought to see the necessity for staying at school so long. The rural secondary school finds great difficulty in retaining many of its pupils to the age of sixteen, and to set up competing schools with a similar leaving age and lower fees, or no fees at all, will be fatal to the neighbouring secondary schools.

The whole subject is one of extreme difficulty, and will only be solved satisfactorily by very slow steps; but the recommendations contained in this report are worthy of careful consideration, and can only be adopted or rejected with the utmost caution.

The following paragraphs are from the report on a suggested type of agricultural school:

As regards the boys who will become agricultural labourers, we understand that the type of school intended

is one where these boys will be given a suitable general education in which the manual side will be fully developed, and theoretical and practical instruction in agriculture and its processes, in order to make them more efficient labourers. We have come to the conclusion that there is at present no general demand for such schools, and that there is no place in the system of rural education for schools of this exact type being carried on continuously throughout the week.

Two main considerations influenced us in coming to this conclusion. In the first place there appears to be a consensus of opinion among practical agriculturists that boys of this class who intend to live upon the land should get on to the land and into practical work on the land as soon as possible after leaving an elementary school. In this view we were strengthened by the attention called in the report of Lord Reay's committee, to the great advantage which the agriculturist derives from beginning to learn his business at an early age.

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The schools at present in existence in England which approximate most closely to the type suggested by the reference appear to be those industrial and reformatory schools in which agricultural instruction is well developed, and the evidence shows that farmers are very ready to employ boys who have been trained in this way. Though the division of the curriculum between general and vocational instruction suggests the type indicated in the reference, the course of instruction in these schools lasts, as a rule, considerably longer than three years, and is continuous throughout the year. This consideration and the disciplinary conditions under which the boys attend them prevent our recommending these schools as exact models for the agricultural boy who has attended the ordinary elementary school.

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However much encouragement is given to the development of rural secondary schools and to the improvement of rural instruction in the ordinary rural elementary schools, we think that there is still room in certain districts for the trial, by way of experiment, of one or other of two new types of school.

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The curriculum of these schools, which might be termed "higher grade rural schools," should include practical gardening and other manual instruction, as well as nature-study, elementary science, mensuration and surveying, and rural economy. Occasional visits to farms, if possible under the guidance of an intelligent farmer, should be encouraged, and some teaching of manual work incidental to farming operations might be given by practical instructors; but with these exceptions, "the practice of agriculture," in the strict sense of the term, would not be taught in the school hours. The great majority of the boys would, it is presumed, be engaged in farm work during their holidays, which should be sufficiently extensive for the practical application of their school instruction. The general curriculum would not include so much literature and languages or higher mathematics as that of a secondary school, neither would the buildings be so costly to provide and equip, or the staffing be so strong, as is now required by the Board's secondary-school regulations. It would also not be necessary to retain the pupils for so long a period as at a secondary school. Leaving school at fifteen, or at most sixteen, they would then pursue ordinary farm work, though in many cases they might, after an interval of practical training, attend courses at a farm institute or agricultural college.



WELSH INTERMEDIATE SCHOOLS.<sup>1</sup>

FOR the first time, in 1909-10, there was an actual decrease in the total number of pupils in the Welsh intermediate schools from 13,760 (in 1908-9) to 13,729, and the Board of Education points out that it is likely that the increase in the industrial parts of Wales in the next few years will just about balance the decrease in the agricultural districts. The report suggests "that through the labour and generosity of practically one generation, the immediate needs of Wales for secondary schools have been supplied." The most urgent need, the report suggests, is now that generous provision should be made by local education authorities for "those children who leave the elementary schools to take up paid occupation," i.e., evening continuation schools.

Although there is now provided a sufficient number of "places" for the pupils likely to need accommodation for some time to come in the intermediate schools, this is only the complete satisfaction of the quantitative factor. The report, whilst highly complimenting the chief inspector of the Central Welsh Board for "his conscientious and patient ability," suggests that the system of inspection should be extended, and that the examination system should be "reconsidered with a view to greater efficiency in the teaching and a greater adaptability both of curriculum and syllabus." The inspections should be made fuller and more thorough, and more characteristic in character. To meet the latter criticism the suggestion is offered that the chief examiners should be made temporary inspectors. Each of these might inspect in the teaching of his own subject a few selected schools, especially the "unsatisfactory ones." We would suggest that *only* chief examiners with good and successful secondary-school teaching experience should be thus engaged as inspectors, temporary or otherwise.

The report has some admirable remarks on the subject of examinations. After agreeing that entrance of pupils for competitive and other examinations leading to professions in life is necessary, the Board of Education suggests that the influence of a system of certificates on the national mind should be carefully investigated. Thus it may be that the effects are to lead to undesirable competition between schools, to render the curriculum too narrow and rigid, or to "tempt the public to believe that success in getting certificates is the chief aim of education." The Central Welsh Board is invited to consider whether it cannot make its examinations more direct tests of the ordinary work of the school. The Board suggests a wider choice of questions "*so that every teacher may have the greatest possible freedom in drawing up the syllabus of his subject and in teaching it according to his bent.*" Then actually follows the surprising suggestion from the Board of

Education of the appointment of *the teachers as assistant-examiners*. It is true that there is the addendum "if this is practicable," but the interesting fact remains that the principle of teachers—to some extent, at any rate—taking part in the official examination of their own pupils is accepted by the Board of Education, whoever else decline to countenance it!

The Board of Education recognises that the Central Welsh Board will move slowly towards the abolition of its junior, higher, and honours examinations, and concern itself solely with a school-leaving examination, which might be the present senior certificate examination, "made as far as possible a school examination in which the teachers take part."

The report contains (in an appendix) a statement as to the salaries of the Welsh intermediate school teachers. The average salary of headmasters (75 in number) is £377; of headmistresses (21 in number), £324. There are 340 assistant-masters, who receive, on an average, £148 per year. The average salary of 336 assistant-mistresses is £121 per year. There is no assistant-master who receives over £250 a year, whilst there are 15 assistant-masters and no fewer than 72 assistant-mistresses who are in receipt of salaries of less than £100 a year. In the light of Prof. M. E. Sadler's standard of £300 as the minimum satisfactory salary for a secondary school assistant in his prime we see how far behind what it should become the Welsh rate of payment is!

The report further furnishes statistics as to the amount applied to scholarships and bursaries. "As regards the sums applied to scholarships and bursaries, which include the provision of 'free places,' it may be noted that the total amount so applied has increased from £22,837 2s. 6d. in the year 1907-8 to £32,313 16s. 6d. in the year 1909-10. It would seem to be time that increases of payment should go to the teachers rather than to further augmentation of scholarships.

The criticisms of the reports of the Central Welsh Board examiners are continued again this year, but in a somewhat modified tone. The following are amongst the main points of the report.

In the reports of the Central Welsh Board Examiners for the year under review, two points call for special notice. One is a series of references, almost repetitions of those of last year, to cases of unintelligent work for which teaching with a view to examination results may be responsible. And in drawing attention to these references it seems necessary to emphasise clearly that the Board of Education are here, as they have elsewhere done both in the present and in past reports, purposely laying stress on what appears to them to be defective. They do this in the belief that criticism of the deficiencies is more important and helpful than praise of the admitted excellences of the intermediate schools. It must therefore be understood that very laudatory references to the work of the schools occur in other parts of the examiners' reports, and that the following extracts are not quoted in any respect as representative passages or as summaries of the reports.

<sup>1</sup> Report of the Board of Education under the Welsh Intermediate Education Act, 1889, for the Year 1910. (Wyman.) 2d.

*English Literature.*

The prevalent faults were irrelevance, and a tendency to rely on memory rather than to exercise independent judgment.

*History.*

The "reproduced notes" were in painful evidence in many scripts; the same answer was repeated word by word by whole forms, more particularly in Welsh history.

*Algebra.*

The questions in the paper which demanded from the pupils some original thought were not generally done well.

*Latin.*

The translation of the set books was on the whole good, though there were certain disquieting symptoms of learning a translation by rote.

*French.*

The free compositions were generally weak except in a few schools. There was little attempt at arrangement, and paucity of ideas was the chief characteristic. To compose in French seemed to be beyond the powers of the average pupil, and even of those who did good translations into French.

The two most important matters noticed in the last report of the chief inspector of the Central Welsh Board are the possibility of greater adaptation and the better teaching of the English subjects.

It would probably help adaptation if the schools could be brought to see that two kinds of differentiation are possible even in the face of present difficulties. One is a differentiation due to personality and inspiring teaching. In one corner of Merioneth, three contiguous schools are already differentiating, the emphasis being laid respectively on mathematics, literature, and science. Another is a differentiation obtained by giving to the ordinary subjects of the curriculum a bias in the direction of a vocation. It might be difficult to teach navigation in schools on the western coastline which produces so many of our sailors, or to teach agriculture in the eastern parts; but it is quite possible to give the ordinary subjects—English, Welsh, history, geography, mathematics, science, and manual work—a strong bias towards navigation or agriculture. In Welsh, for instance, some of the books which have the highest literary merit are descriptions of the life of a shepherd or of a farmer. In many schools a further stage in adaptation is possible; and courses in cookery, agriculture, and horticulture are being thought of or are already in an experimental stage.

More important even than the possibility of this adaptation is the efficiency of the teaching of those literary and humane subjects upon which, especially in the lower forms, the mental development of the child mostly depends. The Welsh child has a natural sense of literary style, especially where he is bilingual. The Charity Commissioners noticed in 1895 that before the Central Welsh Board was formed, and when the schools eligible for the Treasury grant were confined to the most Welsh part of the country, it was in English literature and composition that the schools showed their best work. Since that time a strongly developed scientific and technological side has been introduced, and the literary side is not so prominent. Neither is it entirely satisfactory. There is good teaching ability, but teachers are hampered by the system under which they have to work. The chief faults that call for attention are:

(a) The teaching of English language is too much a matter of formal grammar and philology, and not enough attention is paid to the spoken language and to composition.

(b) The teaching of English literature is too largely a matter of philological and historical notes on a text, while the matter and style of the text itself are not made to appeal to the child.

(c) History is taught, in a great number of schools, as a mere matter of memory and archaeology, and not, as it should be, as the story of a living people, explaining the development of modern institutions and arousing the interest of the children in the economic and social as well as the political aspects of the nation's life.

(d) Geography, for the teaching of which Wales is excellent ground, is not always taught on modern lines.

(e) The school library is neither carefully selected nor closely correlated with every part of the literary side of the school.

What is said of English applies equally to Welsh. Like English, it is often taught as if it were a dead language. It is often taught in English even to Welsh-speaking pupils. The grammar, the dictionary, and the annotated text-book are far too prominent; the language as spoken, composition in it, and its fresh and living literature are too often ignored. Except in a small number of schools, the Welsh section of the library has been almost entirely neglected.

It is not intended to imply, in calling attention to these faults, that the inspectors and executive committee of the Central Welsh Board are not aware of them, or that no attempts are being made to remedy them.

Of the subjects not mentioned in the Central Welsh Board's general report, two have been recently forced upon the attention of the Board of Education. One is the teaching of singing; the other is provision for the comfort of school children while travelling, taking their midday meal at school, or lodging away from home.

There is a lack of systematic instruction in singing in many of the intermediate schools of Wales. The tendency to neglect the subject, or to give it less attention than it deserves, may arise from the fact that no credit for it is given in the examinations for which the pupils are prepared. Music is banished from the curriculum of many classes because of the pressing claims of other subjects; and in many schools it does not appear to receive that attention which it may well claim as an educative and refining influence. This has serious and far-reaching effects.

AN EDUCATIONAL SURVEY.<sup>1</sup>

It is my duty, as it is my pleasure, to express my cordial thanks to the council of the British Association for the honour it has done me in asking me to occupy the presidential chair of the Educational Section at the annual meeting. It has remembered what I was almost beginning to forget—that I was once a school-master. Yet perhaps he who has once been a school-master can never entirely lose the scholastic temper or, at least, I am afraid, the scholastic manner. Some slight comfort, however, I find in reflecting that there is probably no profession which has been adopted and, I must regretfully add, has been abandoned, by so many distinguished men and women as the educational. It happened to me at one time to examine for a special purpose all the lives recorded in the "Dictionary of National

<sup>1</sup> From an address delivered to the Educational Science Section of the British Association at Portsmouth, August 31st, 1911, by the Right Rev. J. E. C. Welldon, D.D., president of the Section.

Biography"; and the number of the persons who were there stated to have been more or less constantly engaged in tuition was not less surprising than pleasing to an old schoolmaster. Apart from such persons as were born, in the proverbial phrase, with a golden spoon in their mouths, it is safe, I think, to assert that one out of every three or four eminent Englishmen has at some time or other been a teacher. Nor is this the truth in England or in Great Britain alone; it is true everywhere. Not to speak of lifelong educators or of persons whose principal work was done in education, there occur to me the names of such men as Isocrates, Aristotle, Origen, St. Jerome, Cardinal Wolsey, Erasmus, Milton, Rousseau, Thomas Paine, Dr. Johnson, Diderot, Cardinal Mezzofanti, Mazzini, President Garfield, Emerson, and Carlyle, who were all content at one time or other to make a scanty living by teaching.

Perhaps the fact that so many persons have taken up education simply as a means of livelihood is the reason why there have been so many educational failures. In no profession have good men and good women done so much lasting harm, or have done it so often without being aware of it, as in education. For an educator, like a poet, is born; he is seldom made: if he is deficient in discipline or insight or sympathy, they are hard to win by practice; harder still is it to win the passion for young souls; yet the educational profession demands enthusiasm above all other qualities; and I used sometimes to say to young candidates for office at Harrow that, unless a man honestly felt he would sooner be a teacher of boys than a Cabinet Minister, he would not be a master altogether after my own heart.

Yet the educational profession in itself, if it is not the most striking or shining in the eyes of the world, may be said to be the most inspiring and the most satisfying of all professions. It is the only profession which is naturally and necessarily concerned with all the three elements of man's composite nature, his body, mind, and spirit. It aims immediately and instinctively at the two highest objects of human aspiration, viz., the diffusion of knowledge and the promotion of virtue. Nor does any schoolmaster rise to the full height of his own calling unless he realises that his true object is to prepare his pupils, in all their faculties and in all the relations of their after-lives, for good citizenship. I cannot help thinking that a teacher who ignores or neglects the spiritual side of his pupils falls as far short of the scholastic ideal as if he were to think little or nothing of their bodies or their minds. The educational profession, when it is rightly understood, is capable of conferring signal benefits upon the community at large. There is an Oriental apologue which tells that in a time of grievous drought, when the king had vainly called upon the wizards, astrologers, and magicians to bring down rain upon his country, one humble unknown man at last stood forth to pray, and at his prayer the heaven above grew dark with clouds, and there was a great rain; the king desired to know who and what was he that had prevailed alone with God, and the answer was, "I am a teacher of small boys."

Education, as has often been said, is to-day in the air. More and more deeply the civilised nations of the world, and among them, at last, even Great Britain, are coming to realise that in the future the battle will be, not to the swift nor to the strong, but to the highly educated. It is the nation of the highest intelligence and widest cultivation which will assert its pre-eminence in the coming days.

But before any attempt can be made to criticise the existing educational system or want of system in Great Britain,

and especially in England, it is necessary to state the principles underlying all true progress or reform in education. In the briefest possible language they are, I think, these:

(1) That every child shall enjoy the opportunity of developing in full measure the intellectual and moral faculties with which God has endowed him or her.

(2) That no difference of opportunity, or as little difference as possible, shall exist between the richer and the poorer classes of society.

(3) That the supreme object of education is to provide good citizens—citizens who, in Milton's stately language, will be able to "perform justly, skilfully, and magnanimously all the offices, both public and private, of Peace and War."

(4) That, as the personal influence of the teacher is a potent factor in education, it is the business of the State to ensure the highest possible efficiency, not only of intelligence, but of character, in the men and women who adopt the educational profession as their life-work.

It seems to me that all the educational questions of the day may naturally be ranged under these four heads. The first includes physiology and psychology as subjects directly bearing upon the teacher's art, the study of individual character, the size of classes, the specialisation of studies, the opportunity of self-culture, the time-table and the constituents of the curriculum, above all, the practical insight by which a teacher discerns, and the sympathy by which he or she encourages, the signs of genius or talent, even when they are overlaid by many faults and failings in a pupil. There is no more humiliating reflection than that teachers have so frequently been blind to the promise of distinction in their pupils. Of the public schools especially it is only too true that they have been, and in some degree still are, the homes of the average and the commonplace. They have applauded mediocrity if it conformed to the rules made by the masters for boys, and the yet stricter rules made by boys for one another; they have been not only oblivious, but even contemptuous, of such conduct as was felt to be a departure from, if not a reflection upon, the established norm of public-school life.

The second head includes such difficult matters as the *carrière ouverte aux talents*, the ladder set up from the lowest educational standard to the highest, the provision of scholarships, the equalisation, so far as possible, of the conditions under which boys and girls compete for pecuniary and other rewards, the danger of social exclusiveness in schools and colleges, and the appreciation of qualities, other than mere learning, as adapting students for their parts at home and abroad in after-life.

Under the third head, if it be granted that citizenship is, or ought to be, everywhere the educational goal, it follows that the teacher may not unfairly claim from the State the opportunity of giving such an education to children, especially in the wage-earning class, where parents are tempted to take their children away from school at an early age in the hope of making them contributors to the family purse, that it may not be hopeless to implant in them a certain knowledge, and with it that love of knowledge without which education, so soon as it ceases to be compulsory, is only too apt to become a negligible factor in the citizen's life. It follows, too, that where the interest of the State is not wholly connected with the interest of the parent, or the class, or the Church, some degree of regard for the State will ultimately prove to be a not unjust condition of receiving public money.

Yet, again, a sense of the importance attaching to the

personal and professional qualities of the teacher leads almost necessarily to an insistence upon official registration as a condition of undertaking educational work, upon the training and testing of teachers by all such means as are suitable to prepare them for their responsible duties, and upon pension schemes for facilitating the retirement of teachers when they have lost or are losing their vigour and have earned a period of repose. For education is a science; it is exacting, as all sciences are; and while the educational profession needs to be made as attractive as possible, especially in days when so many other professions enter into competition with it, and while it loses attractiveness if teachers, both men and women, are compelled to retire from it at too early an age, yet it is obviously wrong to sacrifice the many to the individual or the scholars to the teacher by obliging a schoolmaster or mistress to continue in office when he or she is no longer able to perform the duties of the scholastic calling with full efficiency.

It is permissible to inquire what fresh light has been shed by the experience of forty years upon the established system of elementary education in England.

Perhaps the two dangers most evident at the present time are the tendency of the Board of Education towards bureaucratic control over all the schools coming under its jurisdiction, and the habit of imposing upon the local education authorities, whether by Act of Parliament or by ordinance of the Board of Education, a number of new duties without ensuring any corresponding increase of the public funds which are placed at their service.

It is idle, and it would probably be foolish, to resist the concentration of educational authority in the Board of Education. There are signs that the Board will before long exercise a direct influence even upon the great public schools. But who or what the Board of Education is remains somewhat of a mystery. It is too apt to mean a subordinate individual acting in the name, but without the knowledge, of his superiors.

The Board may have stereotyped elementary education overmuch; it may have laid down too rigid rules or have administered its own rules with too much rigidity; it may have set an excessive store by results which could be easily tested by examination, forgetting that the best and most lasting results of the teacher's influence are just such as cannot be easily weighed in the examiner's balances. But there can be no doubt that the control of the Board has exercised a wholesome influence upon the less satisfactory schools. It assures at least a minimum of efficiency. But the maximum of efficiency lies beyond the power of the Board. It depends upon the close, intimate, sympathetic, personal relation of the teacher to his or her pupils.

Nor, again, is there any doubt of the advantage arising from the gradual pressure of one and the same education authority, not only upon all schools of the same type, but upon schools of different types in the educational field. It is well that elementary schools should within certain limits exhibit something like uniformity of system; it is well, too, that the ladder by which students rise or may hope to rise from the lowest to the highest rungs of educational competency should be so set up as to make the process of climbing them no more difficult than it must needs be. But freedom, spontaneity, individualism, have been the rule in all departments of English life. No power can be more chilling in its effect upon intellectual enthusiasm than the dead hand of a code. Individualism with all its faults is better suited than the rigidity of the French or the formality of the German educational system to the hereditary genius of the English people. It is necessary,

therefore, that the control of the Board of Education, while it is definite, should be as elastic as possible.

Again, the State has laid upon the local education authority the duty of supplying the necessary accommodation in elementary schools, except so far as it is supplied in non-provided or denominational schools through the agency of voluntary subscriptions. But it has scarcely taken account of the difficulties lying in the way of an education authority which can issue no precept of its own. Every education committee in England to-day is harassed by the obligation of persuading a body so hard-hearted as a city council, which is naturally inclined to look upon economy with more favour than upon education. The antagonism between the schools and the rates remains constant. Happy indeed is the education committee in a city where the council rises above the temptation of regarding education as an extravagance or a luxury.

Upon the whole I am not disposed to criticise the education which is given in the different standards of elementary schools. It is not, I think, ill adapted to the twofold object of preparing the children for their normal duties in after-life, and of offering to especially intelligent children the chance of rising to a higher position than that in which they have been brought up. But no teaching, however reasonable in itself, can be properly imparted where the classes of children are too large. If I have learnt any lesson by my educational experience, it is that difficult cases—and these are the cases which try the teacher's skill—need a great deal of individual time and thought. I used to feel, when I was a schoolmaster, that there were not more than two or three of my pupils whom I did not think I could have helped and possibly saved, had it been in my power to spend sufficient thought and time upon them. It is overcrowding which is the difficulty in schools as well as in homes; and I do not believe that any schoolmaster or schoolmistress can do full justice to a class of more than twenty or at the most twenty-five small children. But this, again, is a matter of expense, and as a matter of expense it touches the rates.

But after some careful consultation with persons who in Manchester and elsewhere have studied for many years the problem of public elementary education, I have been led to the conclusion that the reforms needed at the present time are principally the following:

The control of the Board of Education over local education authorities has become too strong and too stringent. It is probably stronger and more stringent now than it has ever been since 1870. It would be wise, I think, to leave or to place greater administrative power in the hands of the local education authority. Local authorities understand local needs. So long as they do not depart from the general principles laid down by the Board of Education, they should be free to expend each its share of the public monetary grant in the way which they hold to be best for their own communities.

I see no need for a dual system of inspectors in elementary schools, and I think it tends to the interference of H.M. inspectors with details upon which their judgment is sometimes more confident than their knowledge is profound.

It is difficult in speaking of inspection to refrain from all allusion to the notorious circular letter which was issued some time ago in the name of Mr. Holmes. That letter was not, I think, so wrong in sentiment as in language. Inspectors chosen from the ranks of the elementary-school teachers may be deficient in breadth of sympathy, as other inspectors educated in the ancient universities may be deficient in practical experience. It is much to be hoped that the unnatural contrast between the antecedents

of two classes of inspectors will pass into the background, and that the duty, which lies upon all education authorities, of appointing the best men or women as inspectors, whatever anyone's antecedents may have been, will regulate all appointments in the future.

The period of a child's school life is now too brief. There should, I think, be a universal minimum age at which children may leave school. It should probably be fourteen years. But whatever that age is, it should be absolute. It should be wholly independent of local by-laws, of the passing of standards, or of attendance at school before the age of fourteen.

The question of evening schools is fraught with difficulty. To make attendance at such schools compulsory would be to run a serious risk of over-pressure. It is probable that sympathetic co-operation between local education authorities and the employers of labour in the locality will in this matter afford the best hope of success. For it is the interest of the employers themselves that their employees should not cease to improve themselves in knowledge so soon as they leave the elementary schools.

The need of the local education authority for increased financial help out of public funds was recognised, I think, in Parliament during the debates on the last Education Bill. The State cannot make fresh demands upon the education authorities without granting them fresh funds. Yet there can be little doubt that the feeding of necessitous children and the care of the epileptic, feeble-minded, and crippled children will soon or late become duties imposed by Parliament on all local education authorities.

Lastly, the connection between the elementary school and the university or the technical school should be made complete. At present the elementary school provides education for children up to their fifteenth year. The university or the technical school does not admit pupils under sixteen years. But education, when it is once broken, is hard to resume. The educational system, if it is to be efficacious, must be continuous.

A public elementary system of education, then, must be complete in itself, so far as it prepares children physically, intellectually, and morally for the affairs of life. But it must not lose sight of the possibility that some, and those the most promising, of the children educated in elementary schools will deserve to rise to a higher than an elementary educational standard.

It is probable that the ascent of pupils from one class of school to another will become more usual in future years. This ascent will be effected or facilitated, as to some extent it already is, by the provision of free places, bursaries, exhibitions, and scholarships. Even now boys educated in elementary schools have attained the highest honours in the ancient as well as in the modern universities. Some such boys have won admission to the public schools, and among these schools to boarding schools as well as to day schools. Whatever amount of social exclusiveness may still apparently linger in that most truly democratic of English institutions, a public school, it seems to me impossible that in a democratic age there should ultimately remain any school which will not open its doors to pupils who are drawn from every social section of the community. In the education of girls, the schools of the Girls' Public Day School Company and other similar schools, whether publicly or privately governed, have done much to mitigate, if not to dissipate, the social differences among girls living in the same locality.

But the agencies by which children of comparatively poor parents have in the past been enabled to receive an education in the schools, and indeed in the universities, of

the rich are, I am afraid, coming to be gravely abused. Scholarships and exhibitions were designed to remedy the disadvantage of the poor, not to accentuate the privilege of the rich. To confer pecuniary rewards upon boys and girls whose parents can well afford to dispense with them is to foster a double abuse. It is to spend money where money is not needed, and to withhold money where it is needed. Yet in the public schools, and to some extent in the universities, scholarships and exhibitions tend to become the perquisites of the rich. In the field of secondary education the competition for scholarships and exhibitions has become so severe that scarcely any boy in the examination for them stands a chance of success, except at the cost of three or four years spent beforehand in an expensive preparatory school. But as rich boys are the only boys whose parents can afford this preparatory expenditure, it follows that rich boys are generally the successful candidates for scholarships and exhibitions. The evil is scarcely capable of exaggeration. It were bad enough that a rich boy, if he competed on equal terms with poor boys, should obtain a pecuniary reward which they do, and he does not, need for educational purposes. But when it is the rich alone who enjoy the opportunity, or the most favourable opportunity, of winning the pecuniary rewards which were justly intended for the poor, a case for drastic reform seems to be made out.

At the ancient universities the sons of rich parents, although they are generally eligible for such prizes as scholarships and exhibitions, do not possess the same advantage in competing for them. More, too, has been done in the universities than in the public schools to provide means by which the sons of rich parents may enjoy the distinction without the emolument of a scholarship. But it is an urgent matter that, alike in the colleges of the universities and in the public schools, the pecuniary benefits, by which alone deserving boys can rise above their hereditary surroundings, whether bursaries, exhibitions, or scholarships, should be strictly confined to the sons of the poor.

Here perhaps it is permissible, as it is certainly natural, to enter a protest against the established tyranny of examinations. Examination was once the obvious remedy for favouritism. But a mere examination in knowledge can never test some of the highest qualities which fit men and women for the service of the State. In India even more than in Great Britain the failure of examinations is conspicuous. A facility for answering questions upon paper is easily associated with grave defects of intellect and character. In proportion, then, as favouritism ceases to be a public danger, examinations will, I think, lose something of their fatal authority. It is difficult to doubt that in the future candidates for public office will be required to pass a qualifying examination, but that the election will, at least in some degree, turn upon qualities which are not so easily tested by examination in writing.

Nor is this the whole evil. There is only too much danger that examinations may create a false ideal of educational success. The object of all education, as I have said, is to prepare pupils for the civic duties of mature life. It is not the intellectual attainment of the young at the age of thirteen or eighteen or even twenty-two, it is rather the service which they render to the State in the maturity of their powers, which is the proof of the teacher's influence upon their lives. The preparatory schools, which have become such important features in the field of secondary education, have done much useful work. The decadence of bullying and perhaps of other evils in public schools is largely due to the elimination of quite young boys from public-school life. The years of a boy's life from nine to

twelve, but not, I think, to a later age, may well be reserved for the preparatory school, as the years from thirteen to eighteen for the public school. But the forcing process which is sometimes applied to young boys in preparatory schools, not only in their lessons but in their games, is fraught with serious peril. A preparatory-school master, if he thinks of his own school alone, may do even worse harm than a public-school master by sacrificing the future of his pupils to the present. When I was a headmaster, I knew of one preparatory-school master who tried to win boys to his school by offering what he called pre-preparatory scholarships to boys of eight or nine years of age, in the hope that these boys might after a time serve as advertisements for his preparatory school by winning scholarships from it at the public schools. But preparatory-school masters are not alone in fault. It is, I am afraid, easy to think of headmasters who have attained what I can only call an ill-deserved reputation, because their pupils have won numerous scholarships and exhibitions upon leaving school, when those same pupils had been mentally exhausted in youth, and their after-life in no way answered to the promise of their early days. "By their fruits ye shall know them"; but the fruits of a true education are seen not in the spring but in the summer or the autumn of a well-spent life.

It is with reference to the final goal of education that the subjects suited to the secondary curriculum must be judged. If the possible subjects are too many, it becomes necessary to strike the balance between utility and culture, and so to decide which subjects are indispensable and which may fairly be subordinated or postponed.

The most striking change which has come over secondary education has arisen from the number of subjects now claiming admission to the curriculum. Scarcely more than fifty years ago the headmaster of a public school was almost at his wits' end to fill up the time-table of his pupils. Dr. Arnold was appointed to the headmastership of Rugby in 1828, and Dean Stanley says of him that "he was the first Englishman who drew attention in our public schools to the historical, political, and philosophical value of philology of the ancient writers, as distinguished from the mere verbal criticism and elegant scholarship of the last century." He adds that, "besides the general impulse which he gave to miscellaneous reading both in the regular examinations and by encouraging the tastes of particular boys for geology and other like pursuits, he incorporated the study of modern history, modern languages, and mathematics into the work of the school, which attempt, as it was the first of its kind, so it was at one time the chief topic of blame and praise in his system of instruction." Other public-school masters followed suit, but they followed slowly. What the system of education had hitherto been may be judged from Malim's "Consuetudinarium," which specifies no subject of instruction except Latin, with a little Greek grammar in the sixth and seventh forms. The dancing-master was a more ancient and more honourable figure in some public schools than any mathematical master. Mathematics, in fact, were not introduced into Eton until 1836. Other subjects in addition to the classics came even later.

But within the last fifty years, not only mathematics but the English language and literature, foreign languages, natural science in its various branches, history and geography, have become competitors with the ancient classical languages for recognition in the curriculum of public schools. There is no one of them which is not worthy of such recognition. But the average intelligence of a public-school boy has remained the same, and the

average length of his life in the public school has been diminished by as much as one-half. It has become necessary, therefore, to make a selection between the subjects which might well, if they could, be taught to all boys alike. Nor is this truth less applicable to girls than to boys.

It may be thought that not enough attention has been paid to the order in which particular subjects are taught. The number of subjects imposed upon a child of ten to twelve years is at times not less alarming than forbidding. Psychology suggests the adaptation of particular subjects to the awakening of particular powers at different ages. Even in literature there is a natural affinity which is too often disregarded between books and the ages at which they ought to be read. How many children have read "The Pilgrim's Progress" at too late, or have read "Hamlet" and "Paradise Lost" at too early, an age for true appreciation! In literature as elsewhere discrimination is the watchword of educational success.

From these considerations it seems to follow that the scientific educator must choose certain subjects as the basis of secondary education, and I venture to think that these subjects should be as nearly as possible common to boys and to girls. Other subjects can be left to the choice of particular students at a later period of their lives. Not all subjects are possible or useful to all students. Soon or late, then, uniformity of teaching must give way to specialisation.

Yet education loses a great part of its value unless it ensures to all educated men and women what may be described as a common educational property. It is desirable that they should not only all learn some things which are worth knowing, but that they should learn the same things. For upon community of information or of interest depends the sympathy of all educated people. If one person knows nothing but French, a second nothing but chemistry, and a third nothing but mathematics, it is evident that they possess no common stock of knowledge; no interchange of sentiments or ideas is possible between them. All sound secondary education, then, postulates a broad basis of common knowledge, or, in other words, a certain body of knowledge which is possessed by all students in common. Upon this basis must be built a superstructure varying in accordance with the needs or capacities of the pupils.

What, then, are to be the basal subjects of secondary education?

They must be few, they must be suitable to the tender years of school life, they must be practically useful, and yet they must possess the element of culture.

Religion, of course, will be one, for it is the paramount factor in the discipline of character.

The study of mathematics possesses the unique merit that it shows what proof is; it distinguishes certainty from probability; it evidences the narrow limits within which certainty is possible.

Natural science in its various branches is especially valuable as cultivating the faculty of observation. Scientific facts can be generally tested by experiment. It is only the pupil who has learnt at least the elements of natural science that begins to feel at home in the world in which he or she lives.

But among educational subjects the palm, I think, belongs to language, if only because language is the subject which stands, by its character as well as by its origin, in the most intimate relation to human nature. Men and women are not generally concerned with questions which can be absolutely and ultimately determined. Most ques-

tions in life are probable, but not certain; it is "probability," as Bishop Butler says, which is "the very guide of life"; and such, too, are generally linguistic questions. They do not admit of certainty; they can be decided only probably; and the decision of them requires tact, judgment, and feeling. That is the reason why the school of languages is called *Literae Humaniores* at Oxford. Language is the one pre-eminently human or humane study.

But it is evident that different languages, as instruments of education, may stand on different grounds.

English boys and girls cannot afford to be ignorant of their own language or literature or history. For they use every day the English language; their minds are fed by English literature; and the past history of their country affords them guidance in the present and the future.

Foreign languages, on the other hand, are practically useful in the relation of Englishmen to other nations. It is possible that these languages will become less important as the English language spreads over the world. But for the present at least a knowledge of some modern language is desirable, not only as a means of mental discipline, but also as a means of intercommunication. One modern language at least, then, may fairly be regarded as entering into the basis of secondary education; and that language at the present time would naturally be French, although much is to be said for German and something for Spanish.

The educational difference between languages and other subjects is, I think, more clearly marked than the difference between one language and another. Whatever intellectual benefit is derivable from an ancient language may in a greater or less degree be derived from a modern language. But it has been shown by many writers, as, for instance, by J. S. Mill in his rectorial address at the University of St. Andrews, that a classical language, like ancient history, if only in virtue of its remoteness from present interests, possesses some educational advantage, and this advantage is particularly clear when an ancient language stands in the relation of Latin to the Romance languages or to any considerable number of languages in actual use. Latin must therefore enter into the general curriculum, and I attach great value to keeping Latin as a subject of general study in secondary schools. For the prejudice of parents in the present day against dead languages is unhappily strong. I have spent much of my time in trying to convince parents that their sons would be better educated by the study of Latin, if not of Greek also. It is for this reason that I regret the somewhat pedantic insistence upon pronunciation of Latin according to a method which, whether it be historically correct or not, will certainly tell against the universality of Latin as a subject of study. I do not believe the modern pronunciation is correct; but whatever may be the philological value of that pronunciation, I feel no doubt that the artificiality, as it seems to parents, of the non-English way of pronouncing Latin will, like the artificiality of the Greek type, create a prejudice in many minds against the study of Latin. Nor is this all; for the study of Latin loses a good deal of its practical value if every or nearly every Latin word is by the method of its pronunciation divorced from the corresponding word in English. It does not really matter in the present day how Latin is pronounced. Latin is no longer a medium of oral communication, even amongst scholars. The vital matter is that Latin should be one of the subjects constituting the permanent basis of education in all secondary schools.

Apart from these subjects, viz., religion, English,

French, Latin, mathematics, and natural science, there is none, I think, which can justly claim a part in that knowledge which I have ventured to describe as the common property of all boys and girls in secondary schools. It is, in my judgment, a happy circumstance that preparatory-school masters have practically decided to relinquish the teaching of Greek; and to concentrate their efforts upon such subjects as form the natural basis of secondary education.

But upon the basis so constituted the teacher will try to erect a varying superstructure, by offering as wide a range as possible to individual tastes. For if the secret of education lies in discovering what a pupil's capacity is, and so in helping him or her to cultivate it, education must pass soon or late from the common basis of subjects to specialisation. It is not my business now to decide how the principle of specialisation should be applied. That is a problem which the individual schoolmaster or schoolmistress must work out for himself or herself. The two points upon which I would venture to insist are the common educational property and the wide elasticity allowable so soon as this common property has been gained. But I am of opinion that, while specialisation is allowable and desirable in the later years of a boy's or girl's life, it should never be complete. The dying out of double degrees in the Universities of Oxford and Cambridge has always seemed, and still seems, to me unfortunate. For it means that nobody now gets so thorough an education as was possible if the student applied himself through his life at school, as well as at the university, both to classical and mathematical studies. The amplification of the several studies may have justly affected the course of education in the universities; but it is my deliberate conviction that a boy or girl whose time is wholly or mainly given to one subject only during school life loses a signal opportunity of obtaining a generous education.

It is tempting to me as an old schoolmaster to linger on the field of secondary education. But the limit of time at the disposal even of the president of a section forbids me to think of adverting to more problems of secondary education than the two following:

Public opinion has always been divided in the education, whether of boys or of girls, between boarding schools and day schools. Adam Smith in his "Theory of Moral Sentiments" went so far as to say "that the education of boys at distant great schools, of young men at distant colleges, as well as ladies in distant nunneries and boarding schools, seems in the higher ranks of life to have hurt most essentially the domestic morals, and consequently the domestic happiness, both of France and of England." The complete severance of a boy or a girl, except during the holidays, from parents and family is evidently, or may evidently prove to be, an evil. It tends to undermine some of the graces of character; it produces in boarding schools the same defects, but perhaps, too, the same merits, as are observable in celibate religious institutions, like monasteries and nunneries. There is too much tendency, especially among parents of the wealthy class, to feel that they have done their duty to their children in paying their children's school fees, and to hand them over to the schoolmaster or the schoolmistress without any thought of the influence which the home ought to exercise upon young lives. It is reasonable to suppose that, if the sense of parental responsibility could be revived, fathers and mothers would be more anxious than they are now to keep their children at home in the early years of their lives. Preparatory day schools, at least in the great cities, will, I think, acquire a growing importance. But at present the



choice between boarding schools and day schools for boys, and in a less degree for girls, is largely determined by pecuniary considerations. For in truth the great public boarding schools are such characteristic features of English life among the upper social class, they have gathered to themselves such a wealth of tradition and influence, they are so deeply rooted in the confidence and affection of the English-speaking world, that it would be difficult, if not impossible, to replace them. Nor can it be doubted that the education given in these schools, however rough and ready, however deficient in some respects it may have been, has yet done much, in Canning's bold ecclesiastical phrase, to produce "a supply of persons duly qualified to serve God both in Church and State," and has tended to foster some of the qualities by which the English race has attained its sovereign position in the world.

Again, there is the question of co-education. For if the early education of boys and girls may, as I have argued, safely proceed on the same lines, it may be held that they can well be educated together. Nor is there any valid educational reason why boys and girls should not be educated together, as they are in the United States of America. In England itself they receive their early education, and they are beginning to receive their academic education, together. It is at least conceivable that co-education throughout the period of school life may come to be the rule in day schools. In boarding schools, however, where the life is ordered on somewhat artificial principles, co-education would almost certainly create problems which would enhance the difficulties of the master or mistress. I do not, therefore, anticipate that co-education in schools will assume a large importance in English life.

So far I have tried to indicate a few of the problems calling for the attention of persons who are engaged or interested in secondary education. Here at least I may claim to speak with some degree of experience. It is with hesitation that I approach the subject of the highest education as given in the universities, especially in the Universities of Oxford and Cambridge.

The elasticity which is characteristic of English life has in the last half-century created a number of local universities beside the two ancient universities. It would be unwise, even if it were feasible, to aim at assimilating the ancient and the modern universities. It is not impossible that the modern universities will lead the way in educational reform. The dead hand of the past lies heavily upon the historical seats of learning. No fact of educational history seems to be stranger than the inability, perhaps I ought to say the unwillingness, of the universities to reform themselves. It might have been anticipated that a home of learning would be a seat of powerful reforming energy. It has not proved to be so. The Universities of Oxford and Cambridge have been reformed more than once, but the reform has come from without and not from within. Whether the present Chancellor of the University of Oxford will succeed in persuading the university of which he is the distinguished head to reform itself without waiting for the action of Parliament is a question on which it would be unsafe for me to venture an opinion. But his plea for reform is itself a proof that reform is needed. It will not, however, be unfitting that I should insist upon the value, and the ever-increasing value as I think, of the work belonging to the modern universities in the great cities of the land—can I be wrong in saying pre-eminently to the Victoria University of Manchester? History seems to suggest that the association of a seat of learning with a great centre of industry may produce the best results, in so far as it imparts culture to industry and practicality

to learning. The modern universities have appealed with striking success to the generous instincts of local patriotism. They have shown the possibility of gathering an earnest body of teachers, and through them of imparting a genuine intellectual culture to a large number of students, without imposing artificial restrictions upon their studies. They have proved the possibility of uniting men and women upon equal terms in the same academic institutions. The Victoria University has aimed with conspicuous success at solving the difficult problem of uniting the teachers who belong to the different branches of the Church in a common faculty of theological learning. In some of these respects, if not in all, the Universities of Oxford and Cambridge will probably follow suit. It can scarcely be doubted that the time is not distant when Oxford and Cambridge will open their doors to students without insisting upon the so-called compulsory study of the Greek language. I speak as one who more than a quarter of a century ago argued against the policy of requiring some knowledge of two dead languages from all students as a condition of entrance into the ancient universities. Such a requirement may have been possible, and even reasonable, when educational subjects were few. It cannot be maintained when those subjects have been greatly multiplied. For the result is either that the study of two dead languages, or at least of one among them, is little more than a farce, or that it causes an unhappy disturbance at a critical period of a boy's intellectual life. Nay, I should be tempted to say that to boys who have received their education on the modern sides of public schools the obligation of acquiring some smattering of Greek knowledge is both a farce and a nuisance.

Nobody feels more keenly than I the intellectual benefit of studying the Greek language and literature. It is my sincere hope, as it is my firm belief, that, when Greek rests upon its own intrinsic merits as a factor in human culture, the study of Greek, if it is less general, will not be less profound than it has been. But times change, and compulsory Greek as a universal subject is unsuitable to the present time, not because it is useless in itself, but because it bars the way more or less against other studies which are still more important. The universities enforce their law upon secondary schools. The schools must teach what the universities require; they cannot teach, or they can only teach within a fixed limit, what is not required at the universities.

In my own mind, however, the abolition of compulsory Greek is only a step to a change in the intellectual atmosphere of the universities. I hope that Oxford and Cambridge will cease to insist upon Greek; but I hope that, when they cease to insist upon Greek, they will require from all students the evidence of some serious learning in some subject or subjects of higher education. Nobody who is conversant both with the ancient and with the modern universities can fail to be aware of the difference in their tone. The atmosphere of a modern university is intellectual. Men and women come there as students; they come to learn, and they do learn. At Oxford and Cambridge the atmosphere is much more social; and the number of undergraduates who can in any sense be called serious students is but a fraction of the undergraduate body. The time is, I hope, approaching when a degree conferred by the Universities of Oxford and Cambridge even upon a passman will be a certificate of a certain definite proficiency in some recognised subject of academic study. For it seems to me that the ancient universities in conferring degrees without an adequate guarantee of knowledge are largely responsible for the indifference of English society as a whole to the value and dignity of learning.

No doubt there is force in the plea that the universities cannot afford the pecuniary loss which would result from the policy of excluding passmen, or of pressing hardly upon them. It may be answered that no pecuniary consideration can justify a university in ceasing to be primarily a learned body. But women students are more earnest than men; and if the universities grant degrees, as I hope they will, to women equally with men, they will probably find that they will receive as much money from the addition of the serious students, who will then belong to them, as they now receive from those students who are not serious at all.

The Universities of Oxford and Cambridge have made frequent appeals for pecuniary support. Education—especially scientific education—is expensive, and it tends to increase in expensiveness. But I have sometimes wished that, before money is poured into the exchequers of the universities, a commission, composed of men who are fully sympathetic with academic culture and yet have been trained in the habits of business, could issue a report upon the use now made by the universities and by the colleges of the funds which they severally command. I am of opinion that such a commission would not prove unable to suggest the possibility of large economies which might be carried out without impairing the efficiency of the universities as seats of learning, or even of the colleges as homes for the students whose proper object in their academic life is to acquire learning.

But when all is said, how great is the charm of the ancient English universities! They are unique; they exercise a lifelong spell upon pupils who have spent three or four years within their ancient walls; they foster, even if unconsciously, a noble sense of patriotic duty; they haunt the memory; they are fruitful in high and generous and sacred inspirations.

What is the spirit of a university? How is it born? How does it operate? Why is Cambridge in a special sense the home of mathematics, and Oxford of letters? Why is it that Oxford finds so many, and Cambridge so few, representatives upon the public Press? Cambridge, it seems, has played the greater part in the thought, and Oxford in the life, of the nation. But why is it that Cambridge has given to the world sons more famous, it may be, than any whose names belong to the sister university—Bacon, Newton, Cromwell, Milton, and Darwin? Why, above all, is Cambridge in so pre-eminent a degree the university of the poets? Such names as Milton, Ben Jonson, Herrick, Cowley, Byron, Gray, Wordsworth, Tennyson, belong to Cambridge alone. Nothing can replace, nothing perhaps can greatly affect, the relation of the ancient universities to the country the ornaments of which they are. What is needed, and will be more and more needed as democracy extends its power, is to enhance the strength of the influence which the universities exercise upon the national life at large.

So I bring this imperfect review of the educational problem in its present aspects to a close by insisting in two or three final sentences upon the supreme dignity of the teacher's profession. The man or woman who elects to become a teacher chooses a great responsibility. It is well that teachers should be disciplined for their calling by a system of training in the educational art. The theory of education as set forth in the writings of great educators like Comenius, Froebel, Pestalozzi, Arnold, Thring, Fitch, and many others, should be well known to them, even if the practical side of education is best learnt, or can only be learnt, by practice. Education needs the best men and the best women. It must, therefore, be set free from such

bonds as have tied it to the clerical profession; nor can I think it is ever well to exact religious tests of teachers, for tests are apt to affect tender consciences alone. If only teachers are asked whether they wish to give definite religious instruction or not, and are subjected to no drawback or disadvantage if they choose not to give it, I think the teachers in all grades of schools may be trusted not to abuse their sacred opportunity. They must teach their pupils to love learning and virtue, and to love them for their own sakes. They must remember that it is the personality of the teacher which is the chief source of his or her influence on the pupils. They must ever be trying to make themselves more and more worthy of their responsibility. "Thou that teachest another, teachest thou not thyself?" must be the motto of their daily lives. But where the educational profession is one in all its branches, where it is actuated by a due sense of responsibility, where it aims in season and out of season at cultivating habits of self-respect, self-sacrifice, patriotism, and religion in the children who will be the citizens of the future, where it remembers that the supreme triumphs of educational skill are good men and women, good fathers and mothers, good servants of the State and of the Church, there is no ground of fear for the country or the Empire.

## SECONDARY SCHOOLS IN RELATION TO UNIVERSITIES AND OTHER PLACES OF HIGHER EDUCATION.<sup>1</sup>

DURING the past few years there have been many complaints of the want of co-ordination between the work of secondary schools and that of universities and other places of higher education. On one side it is stated that secondary schools are encouraged to retain pupils who should be continuing their studies in an institution of university standing, and to present these pupils for such examinations as those of Intermediate Arts or Science of London University. On the other side, it is held that universities and technical institutions are to some extent doing the work of secondary schools by admitting students who are unable to profit by the instruction given and ought to be taking school courses. In an organised educational system this alleged overlapping of educational work would, of course, be avoided. There would be a definite standard of entrance to a university or technical institution, and any work which a pupil at a secondary school might do beyond this standard would be of a supererogatory character carrying with it no additional academic distinction. Our educational institutions have, however, grown up in haphazard fashion without proper inter-relationship; so it has come about that, measured by numbers of successful candidates in university examinations, some secondary and technical schools compare favourably with institutions which are ranked as of higher educational standing, while universities and university colleges are holding preparatory classes to enable a certain number of students to pass a qualifying examination such as that of London Matriculation or its equivalent, which ought to be taken from a secondary school.

The present conditions of want of relationship between

<sup>1</sup> From an interim report of a committee of the British Association appointed to inquire into the overlapping between secondary education and that of universities and other places of higher education. The committee consists of Principal H. A. Miers (chairman), Prof. R. A. Gregory (secretary), Mr. D. Berridge, Mr. C. H. Bothamley, Miss S. A. Burstall, Miss L. J. Clarke, Miss A. J. Cooper, Miss B. Foxley, Principal E. H. Griffiths, Mr. H. M. Bompas Smith, and Prof. A. Smithells.

educational institutions of different grades are natural consequences of the independent growth of these institutions. Much can, of course, be said in favour of autonomy in education, but there is no doubt that it leads in some cases to undesirable competition and dissatisfaction, which would be avoided if the work of each type of institution were clearly defined.

It is of interest to record here that in the United States precisely the same situation has arisen as exists in England, and that the latest report (1910) of the Carnegie Foundation for the Advancement of Teaching deals particularly with this subject. The report points out that a great number of colleges are scattered over the United States having no satisfactory relation to the secondary schools from which they draw their students, exacting entrance requirements with little regard to the secondary schools, and receiving in turn from the high schools pupils who are in the majority of cases ill-prepared for college work. The situation, as in England, is unsatisfactory alike to the college and to the secondary school, and can be regarded only as a transitional stage in the development of an organised educational system.

In the present inquiry the committee decided to deal, in the first instance, only with schools, colleges, and universities in England, and not to consider the special subject of the relationship between secondary schools and medical schools. For the purposes of the inquiry the various institutions were classified as follows:

#### I. Universities.

II. Polytechnics and other technical schools and colleges.

#### III. Secondary schools for girls.

IV. Public schools represented upon the Headmasters' Conference.

V. Boys' secondary schools other than those represented upon the Headmasters' Conference.

The chief points upon which questions were asked related to the extent to which schools are doing work of a university character and how far universities are concerned with work of a secondary-school standard. The results of the inquiry as regards each of the foregoing divisions of educational institutions in England, except No. V., will now be given.

#### I. UNIVERSITIES.

##### *Oxford.*

From Oxford comes the complaint that a certain number of undergraduates proceed to the university without having passed Responsions or an exempting examination; these, however, are only few in number. Both here and at Cambridge the average age of undergraduates when they enter, rather above than below eighteen, prevents this from being much of a grievance. There is some complaint that boys are kept at school after they are ready for the university, many public schools being reluctant to part with boys who are useful in their houses or good at games until the latest possible time.

Some hold that Classical Pass Mods., which involves perhaps as many as 500 students at one time of the year, and about 250 at another—that is, about 60 per cent. of the men reading for Final Schools in Literae Humaniores, Law, and Modern History—is really school work, and it is proposed that the remedy for this is a real Entrance examination. There might, then, be an Intermediate examination with various options, introductory to the Final Honour Schools, but also forming part of the course for a Pass Degree.

On the other hand, the opinion has been expressed that

Pass Mods. is not a bad thing, for it teaches undergraduates to read a Latin or Greek text thoroughly, and introduces them to logic. Considerable waste of time might be avoided by encouraging such men to begin their Final Schools' work as soon as they come up, and to carry it on simultaneously with their work for Pass Mods.

Honour Classical Mods., which affects about 170 students each year, is by some regarded as a mere duplication of Sixth-Form work at school; and it has been suggested that, if students are not encouraged to come to the university younger, the better men should be allowed to enter for Honour Mods. after six months.

A good deal of the work for the Preliminary examinations in science is stated to be really school work. The scholarship system, which sends boys up with an insufficient knowledge of the elementary parts of a good many subjects, is partly responsible for this and for some of the other duplication. Thus, some students who are reading for Final Honours are very imperfectly equipped in preliminary subjects—e.g., mathematics for engineering students and German for science students.

##### *Cambridge.*

Much that has been said concerning Oxford applies *mutatis mutandis* to Cambridge. Here again it is stated that many boys are kept longer at school than is to their advantage. Several correspondents state that 300 or 400 students attending lectures for the Previous examination are doing work that should have been done at school. Little-go lectures are regularly given at some colleges. The remedy proposed is to abolish the Previous and to replace it by a real Entrance examination, or to convert it into one.

There is the same complaint as at Oxford concerning the effect of entrance scholarships, and the consequent omission of elementary training which should have been supplied at school. For example, the English of many science students is very defective.

Neither from Oxford nor Cambridge is the opinion expressed that matters would be improved by any alteration in the age limits for matriculation; and opinions are divided on the question whether boys should be encouraged to come up younger than eighteen or nineteen.

But at these universities the matter is, of course, in the hands of the colleges.

##### *London.*

Here the question is far more complicated. It is confessed by most of those who have expressed an opinion that there is a great deal of overlapping between the matriculation and intermediate stages. The external system of this university renders it possible for the Intermediate and even the Final examination to be taken from school. It is therefore to be expected that there is more university work being done at school than school work at the university, so far as London is concerned. Moreover, the situation is different from that at Oxford and Cambridge even for internal students, for many of them come to the university at a younger and many at a more advanced age. Further, the evening students in London form a distinct class of considerable magnitude who are working under different conditions.

A considerable amount of preparation for matriculation takes place at the colleges in London. At one college about 100 day students are taking matriculation classes; at another college about thirty day students and forty evening students are doing so; and there are probably some at most of the colleges. Some intermediate students are attending matriculation classes. Opinions are very

much divided as to the desirability of allowing intermediate work to be done both at school and at the university. Some think it a good and others think it a bad plan. Some hold that the intermediate students are a good element at schools, and correspond to post-graduate students at the university. At one of the women's colleges connected with the university it is stated that about 20 per cent. of the students working for the Final courses took the Intermediate before they entered, and the number is increasing.

Among the criticisms that have been received from various individuals are statements that the French, German, and mathematics for science students is largely school work; that the first year's science for engineering students should have been done at school; that elementary Greek has to be taught for the Intermediate Arts to those who have not taken it at Matriculation; that work in the higher forms of public schools for boys and girls in classes and mathematics is often up to Pass B.A. standard; that the Pass B.A. really corresponds more to work of the Obergymnasien and Oberrealschulen; that it would be better for clever boys who intend to be medical students not to do any science at school; and, finally, that those who have done their Intermediate Science at school do not do so well as those who have done it at the university.

The problem in London is complicated by many special circumstances. Evening students are often of an advanced age, and must be provided with elementary teaching. Day students who enter colleges between the ages of fifteen and eighteen are not always really prepared for the university. Students who are training for the ministry often come to the university too old to get elsewhere the elementary training which should have been done at school. Many women cannot afford to stay more than three years at a residential college, and therefore, if they wish to devote three years to their final course, they are forced to take their Intermediate examination at school.

Some persons think that to raise the age for Matriculation would help matters; others consider that the ages for Intermediate and Finals should be raised; while a third view is strongly opposed to such changes. There are those who think that the School Leaving examination should be of the present Intermediate standard, and that the Pass B.A. should be abolished on the ground that it is really of school standard.

On the whole, there is very widespread feeling that, so far as London is concerned, there is considerable overlapping both on the side of university work done at school and of school work done at the university.

#### Other Universities.

Opinion from the provincial universities and university colleges seems to indicate that a decided amount of overlapping exists between the university work and that of the secondary schools. There is, however, little definite complaint on the subject; and in the case of one university, indeed, the schools are encouraged to retain their better pupils in order that they may pass the Intermediate examination of the university on entrance. It is claimed that young and forward pupils could thereby benefit from receiving the full period of school discipline, and also from being able to reach a higher standard during their three years at the university. Other universities protest strongly against allowing any work of university standard to be carried on in the schools. There is some complaint as to want of general education and of the admission to the university of pupils who should not be admitted, not merely because they are ill-prepared, but because even a longer period at school would probably not have brought them to

the necessary level. Attention is directed to overlapping in the teaching of elementary science, but it is not altogether deplored. It is felt to be an advantage both for the students to have preliminary scientific knowledge before coming to the university, and also to revise this elementary knowledge in the university, where it has to serve as the basis of a professor's particular system.

#### II. POLYTECHNICS AND OTHER TECHNICAL SCHOOLS AND COLLEGES.

Most of the work of the technical schools and colleges in England is carried on in evening classes, and does not, therefore, come within the scope of the present inquiry.

This section of the committee's inquiry need only be concerned with the question whether the work of day technical classes and of technical institutions, as defined by the regulations of the Board of Education, overlaps that of secondary schools, and, if so, to what extent. Particulars of the number and ages of students in these two groups are given in the volume of the "Educational Statistics for 1908-9" issued by the Board (Cd. 5355, 4s. 2d.), and from the tables in that volume the following numbers have been extracted:

TABLE I.

#### Technical Institutions (England).

|  | 1908-9 |
|--|--------|
| 1. Number of institutions and courses:   |        |
| (a) Number of institutions recognised ... ..   | 40     |
| (b) Number of courses ... ..   | 121    |
| 2. Students:   |        |
| (a) Number of students who attended a full course of instruction ... ..  | 1,962  |
| (b) Number of students who attended at any time during the year:   |        |
| (i) Age at date of first registration for the session:   |        |
| 15 and under 16 years of age ... ..  | 211    |
| 16 " 18 " ... ..   | 835    |
| 18 " 21 " ... ..   | 1,300  |
| 21 years of age and over ... ..  | 908    |
| (ii) Sex:  |        |
| Boys and men ... ..  | 3,091  |
| Girls and women ... ..   | 223    |
| (c) Number of students returned as having been previously educated:  |        |
| (i) At public elementary (including higher elementary) schools only ... ..   | 264    |
| (ii) At secondary schools on the Efficient List:   |        |
| (a) For four years after reaching the age of twelve ... ..   | 660    |
| (b) For three years after reaching the age of twelve ... ..  | 423    |
| (iii) Otherwise ... ..   | 1,222  |
| (d) Number of students returned as admitted:   |        |
| (i) On account of passing a university Matriculation (or equivalent) examination ... ..                                      | 609    |
| (ii) On account of passing an examination recognised by the institution as a test of ability to profit by the courses ... .. | 1,169  |
| (iii) Without passing any such examination test ... ..   | 908    |

The Board of Education recognises as work of technical institutions the courses in engineering and other branches of applied science carried on in some of the provincial universities. The two thousand students who attended full courses of instructions in technical institutions in 1908-9 thus include a number of students of technology in universities. As to the Day Technical Classes in Table II., the Board estimates that the number of students doing work which approximates to the standard of a first year's course or higher in a technical institution is about 400, the remainder being below that standard.

TABLE II.

*Day Technical Classes (England) under Article 42 of the Board of Education's Regulations for Technical Schools, &c.*

|   |     | 1908-9 |
|---|-----|--------|
| 1. Number of institutions and courses :                                       |     |        |
| (a) Number of institutions in which day technical classes were recognised ... | ... | 100    |
| (b) Number of courses for which grants were paid ...                          | ... | 175    |
| 2. Students :   |     |        |
| (a) Number of students who attended at any time during the year :             |     |        |
| (i) Age at date of first registration for the session :                       |     |        |
| 12 and under 15 years of age ...  | ... | 3,380  |
| 15 " 18 " ...   | ... | 2,759  |
| 18 " 21 " ...   | ... | 1,128  |
| 21 years of age and over ...  | ... | 2,799  |
| (ii) Sex :  |     |        |
| Boys and men ...  | ... | 5,700  |
| Girls and women ...   | ... | 4,366  |
| (b) Number of students returned as having been previously educated at :       |     |        |
| (i) Public elementary schools ...   | ... | 6,935  |
| (ii) Secondary schools ...  | ... | 2,316  |

To supplement the particulars provided by the Board of Education's volume of statistics, a circular of inquiry was sent to the principal, director, or headmaster of the seventy-one polytechnics, technical schools, and colleges in Great Britain and Ireland represented upon the Association of Technical Institutions. Replies were received from fifty-nine technical colleges and schools in England. Of this number, twenty have secondary day schools connected with the technical schools, though usually independent as regards staff and organisation. The total number of students in these secondary schools is about 5,000, of whom about 200, or 4 per cent., are above the standard of London Matriculation or its equivalent.

It cannot be said that the schools connected with technical colleges are to any appreciable extent doing work of institutions of a higher grade. The work of the schools is usually planned to enable the Sixth Form to take the London Matriculation examination, and to the few students who have matriculated opportunities are given to remain another year preparing for the examinations of Intermediate Science or Arts. In some of the schools special courses in engineering and other technical subjects are provided for pupils in the upper forms. At the Cockburn Technical School, Leeds, for instance, with a total of 450 boys and girls as pupils, from twenty to thirty (ages fourteen to sixteen) take a special course in engineering subjects as part of their school course. At the Technical Institute, Keighley, with a total of 280 pupils, boys who have reached the age of fifteen years and are fitted by their educational progress are permitted by the Board of Education to take seven hours a week in the textile department instead of continuing their work in general physics and chemistry.

The work of the day technical classes cannot be said in any way to overlap that of secondary schools. In the main it consists of preliminary training for apprentices or other specialised preparation for industrial, commercial, agricultural, or domestic life, and is equally suitable for students who have received their previous education either at public elementary or at secondary schools. The courses followed could not form part of the work of a secondary school, and few of the students would attend secondary schools if day technical classes did not exist. Schools of this type stand by themselves, and do not interfere with

secondary schools on one hand or higher technical training on the other.

The results of the inquiry as regards day students in technical schools and universities (England) recognised by the Board of Education as technical institutions show that the total number of such students is about 3,900.

As to these technical institutions, a certain amount of the day work, namely, that of the preparatory classes, may perhaps be considered as belonging to secondary education rather than technical. A number of students enter the day classes of technical institutions at too late an age to be admitted to secondary schools, and it is largely on their account that the preparatory classes are necessary. It appears from the numbers given in Table I. that less than one-fifth of the students in the technical institutions of England had passed a university Matriculation examination or its equivalent upon entrance, and that nearly one-quarter was admitted without passing any examination test. "There is still a tendency," says the latest report of the Board of Education, "to admit students to technical institutions before they have had an adequate course of general education." As, however, the number of students under sixteen years of age at entrance is only about 200, the overlapping, so far as age is concerned, is not very great; and technical institutions cannot be said to compete with secondary schools to any serious extent.

From the latest report of the Board of Education it appears that in the year 1908-9 there were fewer than 2,000 students taking full courses of instruction in technical institutions in England and Wales connected with the Board, this number including students of technology in several provincial universities or university colleges. Of these students, 806 were engaged in the work of the first year, 653 in that of the second, 403 in that of the third, and 125 in still more advanced work. If the standard of entrance to a technical institution, as defined by the Board, were that of a secondary-school Leaving Certificate or university Matriculation, most of the institutions would be unable to exist. The Board of Education's statistics reveal, in fact, the poverty of the position of systematic technical education in England as regards day classes. Referring to this point, the Board remarks: "The total amount of advanced instruction of the kind provided in technical institutions is still disappointingly small. In some of the more important industries, as, for example, engineering, the instruction is largely utilised by students, but in a great many others the supply of students is very small. It is to be deplored that there are several schools in which the well-qualified staffs and the excellent equipment practically stand idle in the daytime through lack of students."

### III. SECONDARY SCHOOLS FOR GIRLS.

In the case of these schools it was considered desirable to send personal letters asking for information as to overlapping between the school education and that of universities, &c., to representative secondary schools for girls instead of issuing circulars to all girls' secondary schools.

In order to determine which schools should be chosen, reference was made to the volume published recently by the committee appointed by the Headmistresses' Association to report on the curricula of public secondary schools for girls. A list is given in that volume of girls' secondary schools "considered in some ways to be typical of many others, and to include every variety of public secondary schools for girls." Letters enclosing a list of the questions to which answers were requested were sent, therefore, to these schools and to a few others in addition, and in most cases the required information was obtained.

The total number of girls in attendance at the schools from which information was received was 8,734. In 1910 410 girls—nearly 5 per cent. of the present number—had passed some examination qualifying for entrance into a university, and of these girls 225—that is, about 56 per cent.—have remained at school after passing the examination. Most of these girls, who are now at school and are already qualified for entrance into a university, are doing work which may be included under one of the following heads:

- (1) Preparation for Intermediate Arts or Intermediate Science.
- (2) Preparation for the Final B.A. (five from one school alone).
- (3) Preparation for a scholarship examination at a university.
- (4) Preparation for the Cambridge Higher Local.
- (5) Preparation for entrance into certain training colleges.

A great difference exists between the views on the subject of "overlapping" expressed by (a) headmistresses of schools outside London and (b) headmistresses of London schools:

(a) Most of these, including headmistresses of large schools in Birmingham, Leeds, Manchester, and Wakefield, consider there is no difficulty as regards overlapping. One headmistress says: "The fact that there is no overlapping here shows, I think, the value of the local university and the importance of having a close relation between the school and it."

(b) With one exception, all the London headmistresses who express opinions on the subject of overlapping agree in stating that they are in favour of girls staying at school after they have matriculated, and taking higher work. One headmistress states that she would like all girls who had matriculated to stay on for a year, as she considers: (i) they are often too young and immature to go straight to college; (ii) it is important for the staff to do more advanced work; (iii) it is good for the school as a whole to have work beyond matriculation, as the standard of the final school work is thereby raised.

The opinions expressed by two headmistresses of long experience are here given in full.

*North London Collegiate School (Mrs. Bryant).*

"In schools like this, matriculation is taken (generally in the form of the Senior School examination of the University of London) in the Upper Fifth Form. The Sixth-Form studies are on the lines of (1) Intermediate Arts or (2) Intermediate Science, except in the case of those who are specialising more closely in preparation for Oxford and Cambridge. Since the leaving age is nineteen, girls frequently take two years in the Sixth Form, when the method of work is transitional between school and university. These girls generally take honours courses at the university, and, by having passed Intermediate Arts or Science at school, they have three years for their final honours work in London, as they would have if they became students at Cambridge. Others who enter the university with matriculation attainments only become, with some exceptions, Pass students.

"Thus the Sixth Form overlaps the university with respect to the course for Intermediate examinations in the colleges. By doing so it increases the supply to the university of the better type of student more developed in intelligence, more mature in character, with more independent habits of study. On the other hand, the colleges, by overlapping with the schools, make it possible for boys and girls with fewer advantages to enter the university at

an earlier age, and go out into the world on a shorter, but still sufficient, course of higher education. There are only two alternatives to overlapping: (1) to level down by the abolition of Sixth-Form work, and (2) to level up by raising the standard of university entrance. Each of these alternatives would, in my opinion, have disastrous effects. A certain amount of overlapping appears to me to be highly beneficial."

*Clapham High School (Mrs. Woodhouse).*

"With regard to 'overlapping,' I feel strongly the desirability of encouraging girls to remain longer at school, and not to enter the university before the age of nineteen at the earliest. I consider that at the age of seventeen or eighteen girls profit more by school than by college instruction—by reading under the guidance of a teacher rather than a lecturer. I believe that a distribution of labour on these lines between school and university would in the long run much improve the average quality of university students.

"But the scholastic view weighs less with me than does the advantage which girls gain in character by facing the responsibilities and the privileges given by the characteristic spirit of a Sixth Form, and which are as valuable in the formation of the character of girls as is the case with public-school Sixth-Form boys. I may add that I have reason for believing that the above statement represents the general opinion of the Association of Headmistresses as a whole."

The regulations of some London training colleges are held to be responsible for a certain amount of overlapping between secondary and university education.

The inability of girls living at a distance from a university to meet the necessary expenses is another reason why girls are kept in school. The headmistress of one school, not in London, but in which there are at the present time five girls preparing for the Intermediate Arts and five for the Final B.A., states that "all the girls who are doing degree work are quite unable, owing to poverty, to enter into residence at any college."

Consideration of the information received from various sources shows that the question of overlapping between girls' secondary education and university education is especially prominent in connection with the University of London. Several headmistresses think that the Intermediate Arts and Intermediate Science work is better taken at school than at the university; and one remarks: "Intermediate work is properly VIA Form work, and does not really trench on university work."

IV. PUBLIC SCHOOLS REPRESENTED UPON THE HEADMASTERS' CONFERENCE.

It is always difficult to define a "public school," but in this section of the report it has been assumed that the chief difference between such schools and the grammar schools is that the former keep their pupils to a later age than do the latter; it may be that as an indirect result of this they draw their pupils from a more wealthy and possibly higher social class of parent, but this is chiefly due to the fact that a poor man cannot afford to keep his boy at school sufficiently long for him to be able to reap the full benefit of the public-school system; that it is not solely a question of the fees charged is proved by the fact that of the 101 schools represented upon the Headmasters' Conference, no fewer than thirty are in receipt of Government grants.

Circulars were sent to about thirty-five schools represented upon the Headmasters' Conference, the selection being made to include about equal numbers of the larger

and smaller schools. Questions were asked as to the number of boys at present in the school who had passed the various university examinations, and what they were then reading; also whether, in the general opinion of the masters in the school, it was advisable for boys who had passed a university examination to spend the remainder of their school life in reading the subject they would study at the university if that subject was (a) classics, (b) mathematics, (c) science, (d) history.

Since the especial aim of the public schools is to develop the sense of responsibility and the power of command in their boys, and these can only be acquired by the older pupils, there is a unanimous feeling on the part of the masters in such schools that nothing should be done to discourage the boys from remaining at school until they are eighteen or nineteen years of age; if, however, they are to do this, it follows that, unless boys entering the public schools are less able than those who join the grammar schools (and of this there is no evidence), the various subjects taught can, and must, be carried to a more advanced stage in the former than in the latter. In other words, there must be a certain amount of overlapping between the subjects taught in the public schools and in those universities which draw their undergraduates chiefly from schools in which the average leaving age is sixteen.

The tutorial system at Oxford and Cambridge prevents any of the undergraduates from being obliged to attend lectures unsuited to their requirements; those who begin the study of a new subject—e.g., science—are able to attend the lectures given to Pass men, while those who go up with a certain amount of groundwork already covered are advised by their tutors which lectures can be omitted with advantage. On the other hand, there seems to be no adequate tutorial system in force at most of the colleges of the London University, and frequent complaints are received at the public schools from the old boys that they are obliged to waste the greater part of their first year in going over work they have thoroughly mastered at school: this chiefly affects those boys who have spent a year at school after passing the Matriculation examination, but have not succeeded in reaching the standard of the Intermediate Arts or Science; it certainly seems to be desirable that there should not be so sharp a distinction drawn by the London colleges between their first- and second-year courses, and that those who are able to do so with advantage should be allowed to attend second-year lectures even if they have not passed the Intermediate examination.

All the schools to which circulars were sent, with the single exception of the City of London School, reply that in their opinion boys who have passed some examination in general education should be allowed to spend the greater part of their remaining school life in working at the subject which will form their special study at the university. It is, however, widely felt that a smaller amount of time should be devoted to some other work which will tend to widen their minds; e.g., those who are to take a degree in classics should also read a certain amount of modern history, those who aim at a science degree should learn German, and for those who are to read mathematics or history a course of elementary science should be provided.

The following opinions are typical of many letters received:

MR. O. H. LATTER (Charterhouse).

"I have no hesitation whatever in pronouncing in favour of boys staying on at school after passing the entrance examination to a university. If a boy has the natural aptitude for classics, and if his father's purse is deep

enough, by all means let him enlarge his mental outlook as much as possible. But the majority are boys whose intellectual bent is in the direction in which they incline to specialise; and in such cases I do not see why the side of the mind which can be cultivated *con amore* should not get its opportunity at school.

"I am dead against the idea that a boy should leave school at sixteen. It is those last years from sixteen to eighteen that give our English public schools (and Englishmen) the quality that is the envy of the world. It is then that they learn self-control, how to use authority, and all the most valuable part of character-training. I am not blind to the faults of our public schools, but I would sooner continue many of these than sacrifice the one thing which has gone a long way towards forming our conception of an English gentleman. Reform us in some matters if you like, but do not interfere with that remarkable mixture of self-government and tutelage that is our peculiar possession, and that no other nation in the world attempts."

MR. C. F. MOTT (Giggleswick).

"During his last few terms at school a boy who aims at an honours degree at the university should run no risk of losing ground in his special subject. He should therefore devote a considerable time to it. English should be retained for the sake of general culture, and subjects which are likely to be useful should be added; e.g., a science student should give attention to mathematics and modern languages. It is greatly to the advantage of a boy who is going to specialise at the university to remain as long as possible at school if the conditions are such that a master or masters can give him a good deal of attention and help in his special work, which is generally the case at public schools.

"There can be little or no overlapping between public schools at Oxford or Cambridge, as it is not customary to enter these universities before the age of nineteen nor, in most cases, possible to remain at school after that age. The provincial universities, however, admit students at a lower age, and overlapping occurs between them and the larger secondary schools.

"With regard to a break in the method of instruction, I see no reason why such a break in method, if it occurs at all, should coincide with the change from school to university. It would seem better gradually to modify the method as the age of the pupil increases, suiting it to his powers and attainments, and in the later stages accustoming him, as far as possible, to the methods he will find in use at the universities. Otherwise he may lose time in adjusting himself to new conditions."

It has proved to be impossible to obtain any useful figures showing the number of boys who remain at school for any considerable time after passing some public examination, the difficulty being that in the majority of cases boys who are working for scholarships are not sent in for Responsions, &c., until they have obtained their scholarships; consequently, any such figures would omit the most promising boys from the various schools, and would give a totally erroneous view of the work carried on in them.

From the returns received, however, it seems that about 8 per cent. of the boys remain at the public schools for at least a year after passing some university examination, those generally taken being Responsions or Previous (including the Higher Certificate of the Joint Board, which gives exemption from these), London Matriculation, and the "School Certificate." Of the 8 per cent. mentioned above, 31 per cent. had passed Responsions, &c., 23 per



cent. London Matriculation, and 45 per cent. some "School Certificate" founded about seven years ago to meet the requirements of the War Office for Army candidates. A considerable number of boys holding this certificate are at present on the Army sides of the various schools. The use of this examination has been extended during the past few years, however, to other parts of the school as a test for the ordinary boys who, whilst in one of the upper forms, have not reached the sixth. The hope is expressed by many schoolmasters that the recent action of the War Office in abolishing the need for a Qualifying examination for Army candidates will not cause this tendency to be arrested.

It seems to be a general opinion among the masters in public schools that there should be no sudden transition from the methods of teaching adopted in the schools and at the university, since in this case valuable time would be lost before the pupils became accustomed to the new methods; in fact, one correspondent suggests that there is already too little overlapping between the methods employed, and that at present there is too much lecturing and too little teaching at the universities, while in the schools there is too much "spoon-feeding" and too little lecturing.

### HISTORY AND CURRENT EVENTS.

LAST month we referred to the more than possibility of a really Imperial Parliament for the British dominions. This month we have to notice a parliament whose constituents, if we may call them so, are larger still. At the end of July there met in London what its admirers (there are who do not believe) call, in Tennyson's phrase, the "parliament of man." "The object is to discuss, in the light of science, the general relations subsisting between the peoples of the West and those of the East, with a view to encouraging between them a fuller understanding, the most friendly feelings, and a heartier co-operation." Of course, the movement of which this "parliament" is a symptom is voluntary, not the work of States. But, from the point of view of those who are enthusiastic in the cause, how small appear local politics, local religions, even the affairs of the British Empire and of Hague Tribunals! If only we could understand one another, would there be (the question was raised in the "parliament" and answered by one speaker in the affirmative) the possibility of war?

OUR text-books on English and other history often begin with some account of the earliest inhabitants of this country, the folk of "prehistoric" ages, and tell us much of what has been discovered by archaeologists of those "far off, unhappy things." We are told, for example, that "our forefathers" dwelt in caves, and we have naturally supposed that we have long left that dire necessity far behind us. Some of us have, perhaps, wished during this "wonderful summer" that we could escape to some such retreat from him whose "going forth is from the end of the heaven, and his circuit unto the ends of it: and there is nothing hid from the heat thereof." But Mr. Baring-Gould in a recent work has shown us that cave-dwellings are still used in Europe, and even in France. "In the department of Maine et Loire," he tells us, "there is often very valuable vineyard land that has to be economised, and therefore the owner cuts chambers in the rock under his vineyard, looking through windows and a door into a quarry hole." How institutions, social as well as political, arise, not for their own sakes, but for the sake of man! There is no custom, however apparently absurd, which has not at least begun in reason.

IN June last we saw a paragraph in a newspaper headed "The King's First Act." The action was one of some trivial kindness and is of no importance; but it is interesting to see a survival of the old idea that the Sovereign is not properly King until he is crowned. It was only by accident, as it were, that we adopted the modern idea. The absence of Edward I. at the death of Henry III., and his leisurely journey home from the Holy Land, necessitated the adoption of the theory that he was King at the moment of his father's death. Otherwise there would have been no "peace" in the land. But it was not until Edward IV. in 1461 snatched the crown from Henry VI. in the midst of the "Wars of the Roses" that the theory was formally adopted that the King of England is so even before coronation. On March 3rd, 1461, a small collection of lords, ecclesiastical and lay, declared him King, and the next day he was formally proclaimed at Westminster. But it was not until June, after the battles of Ferrybridge and Towton had scattered almost the last remnants of the Lancastrians, that Edward was crowned. He claimed the crown by hereditary right, and that was, at least in the opinion of his party, sufficient to make him King without coronation. The theory thus adopted to meet an occasion has become part of our constitution.

"THE Roman Catholic priests in Portugal have agreed unanimously to decline the pensions granted by the Separation Law. They affirm their patriotic sentiments, but they expect the Roman faith to be accorded the same measure of liberty and the same privileges as it receives in the United States, Brazil, Switzerland, and other advanced countries." In 1111 Europe had not yet reached the end of the Investitures controversy, that quarrel between Pope and Emperor as to their respective shares in the nomination of bishops, especially in Germany and Italy. The difficulty arose from the double nature of the bishops, who were at the same time officers of the Christian Church and tenants-in-chief of the German and Italian King. Pope Pascal II. proposed, and Henry V. accepted, that the bishops should surrender their fiefs that the churchmen might have liberty. That is, the Pope offered to submit to disendowment in order to get disestablishment. The scheme was wrecked on the reluctance of German and Italian bishops to forgo their revenues, and it has been left to modern times to revert to this ancient solution of the problem of the mutual relations of Church and State.

### ITEMS OF INTEREST.

#### GENERAL.

THE Modern Language Association has arranged for five lectures for teachers of French to be given by Prof. Vandaele, of the University of Besançon, in London on October 5th to 10th inclusive. For particulars and syllabus application should be made to the honorary secretary of the Modern Language Association, 45, South Hill Park, Hampstead, N.W.

THE President of the Board of Education has appointed a departmental committee to inquire and report: (a) Whether it would be consistent, with due regard to educational and hygienic considerations, that the minimum standard of playground accommodation for new public elementary schools prescribed in the Building Regulations of the Board of Education—viz., 30 feet per head of accommodation—should be modified or adjusted according to the size, design, or situation of schools, the proximity of recreation grounds or open spaces, the density of population, the cost of land, or otherwise. (b) How far it is

possible or desirable to define more precisely the standard of playground accommodation which the Board of Education will require under the Code of Regulations for Public Elementary Schools in the case of existing schools or to regulate the practice of the Board of Education in dealing with cases in which the playground accommodation is considered to be insufficient. The committee will consist of Mr. L. A. Selby-Bigge, C.B., principal assistant-secretary of the elementary education branch of the Board of Education (chairman); Sir George Newman, chief medical officer of the Board of Education; Mr. J. C. Iles, H.M.I., divisional inspector for the north-western division; Mr. F. H. B. Dale, H.M.I., divisional inspector for the metropolitan division; Mr. A. B. McLachlan, of the Local Government Board; with Mr. L. J. Morison as secretary.

THOSE of our readers who are interested in the study of German will be glad to hear of the Böttinger-Studienhaus in Berlin, the office of which is at Universitätsstr. 8, Berlin, N.W. 7. The Böttinger-Studienhaus has been founded to give foreigners, especially Americans and English people, an opportunity of studying the German language or of improving their knowledge of German, and of becoming familiar with the principal aspects of German culture. The courses of instruction will be open to any foreigner, provided his or her school preparation is such as to make successful studies possible. Prospective students should be provided with their school diploma and with some official paper which will serve for identification. The first course will be from October 16th to December 9th, 1911; the second from January 8th to March 2nd, 1912; and the first vacation course from April 11th to May 8th, 1912. The secretary of the Böttinger-Studienhaus will give further information on application. The board of the institution consists of representatives of the "Ministry for school and ecclesiastical affairs," the rector of Berlin University, Prof. Dr. Max Rubner, and Profs. Erich Schmidt, Hermann Diels and Alois Brandl, also of Berlin University. The teaching staff consists of the director of the Böttinger-Studienhaus, Prof. Dr. Wilhelm Paszkowski, and of university and college professors.

THE annual meeting of the National Society of Art Masters was held at the Victoria and Albert Museum, South Kensington, at the end of July. The report of the council, which was adopted, states that during the past year the increase in the number of members has continued, and there are now nearly 360 names on the roll. The number of district members has also increased to 231. The organisation of the districts has been completed, and several new sub-districts have been established. The recent issue of Circular 775 (see THE SCHOOL WORLD, August, 1911, p. 303) by the Board of Education marks an important stage in the development of the relations of the Board to schools of art and art education. Among the persons appointed by the President of the Board of Education to be the first members of the New Standing Committee of Advice for Education in Art are three members of the Society of Art Masters. In his presidential address Mr. R. G. Hatton, of Newcastle-on-Tyne, said there is no need to plead the cause of art now; the great trouble is to keep up with the quick pace with which the understanding of it is moving. The Society of Art Masters claims that the people have a right to sound education in art, apart altogether from questions of trade or vocation. All persons should have the opportunity of studying during their youth and early manhood any subject which they care to study. The success of this country in art depends very greatly upon the proper provision of opportunities for

the practice of it during the ten or twelve years of serious and enthusiastic activity which succeed one's school days. A city or a county has not adequately provided educational opportunities unless it has established a sufficient number of schools of art reasonably accessible to the public.

THE executive committee of the General Council of Church Training Colleges has presented a memorandum to the President of the Board of Education dealing with the qualification and supply of teachers. The memorandum states there has been a marked and general falling off in the number of candidates for entrance into training colleges owing largely to the agitation of the last two years, which arose out of the over-supply of teachers and consequent difficulty in many cases of obtaining employment. A careful investigation leads the council to the conclusion that a pressing need of the time is the framing and publication by the Board of Education of a definite and comprehensive policy with reference to the qualification and supply of teachers. If such declaration be made, the following steps would follow in due course: (1) The definite announcement would be made that after a certain date no more (or, according to policy, a much smaller percentage of) untrained or uncertificated teachers would be appointed. Special arrangements would have to be made in the case of smaller country schools. (2) A thorough inquiry would be made into, and a careful estimate formed of, the consequent requirements of the schools throughout the country and of the existing provision to supply their needs. (3) The council feels strongly that as the revised staffing would involve increased expenditure, more care should be taken in the preliminary selection of candidates for the teaching profession, and suggests (i) that no young person should be appointed as bursar who has not shown some qualities and aptitude (apart from merely intellectual tests) for the teacher's profession; and (ii) that no bursar should be allowed to proceed to a student-teachership who has failed to prove such fitness. (4) To avoid any possible hardship to any person now engaged in teaching, existing qualifications should be recognised, subject to the requirements of efficiency, although the council is of opinion that it might be reasonable to require, or at any rate useful to encourage, untrained, uncertificated, and supplementary teachers to improve their qualifications within a certain period.

THE biennial conference of the National Association of Teachers of the Deaf was held in Manchester at the end of July. A number of resolutions were adopted, and among them may be mentioned those (i) calling for an increased proportion of the cost of the education of the deaf to be borne by the State, and suggesting that the grants paid should at least be in the same proportion to the total cost as in the case of ordinary elementary education; (ii) endorsing the view of the chief medical officer of the Board of Education that it is wise that deaf children be admitted to school at the age of five years, and expressing the conference's opinion that the compulsory school age of deaf children at admission should be brought into line with that of normal children and of blind children; (iii) urging, first, that in order to secure proper data respecting congenital deafness, the Board of Education be requested to approach the Government department controlling the census with the view of ensuring the modification of the questions affecting deafness in the next schedule on the lines recommended by the Royal Commission; and, secondly, that representations be made to the Chief Secretary for Ireland urging the necessity for the passing of an Act for the compulsory education of the deaf in Ireland.

LORD SHEFFIELD, the president of the association, said at the conference of the National Association of Teachers of the Deaf that a proper training college for teachers of the deaf is needed. It might be grafted on to some existing institution, but would have to be more or less under national direction. It need not be managed entirely by the Board of Education. He would like to see a committee of management largely representative of the various schools for the deaf and of the teachers, with some representatives of the great local authorities which are doing much for the teaching of the deaf, but under the general supervision, direction, and financial control of the Board of Education. Lord Sheffield calculates that there are at least six thousand children in various schools for the deaf, and for those he postulates seven hundred teachers. Whilst not specifying what the exact course of training should be, he is inclined to demand, first, as full a general training as for other elementary-school teachers—two years—and afterwards a two years' course in a special college which would involve a substantial measure of time spent in schools for the deaf. For all future appointments of teachers, continued the president, educational qualification up to the standard of a certificated teacher should be required, as well as special qualifications, and pending an adequate output from the proposed college he would have liberal payment, say £50 a year per student, who should attend specially recognised institutions where, as student-teachers, they should be trained for two years, but not counted on the staff.

AMONG the bequests of M. Marino Corgialeagno, a naturalised British subject, who died last April, are: £40,000 to institute a school at Athens on the lines of Eton or Harrow, "sharing in the desire expressed to me by his Majesty King George that education in Greece should be rendered more perfect by the establishment of a public or secondary school upon the model of the English public schools, where boys will receive a regular course of teaching as well as of good breeding."

THE second volume of the report of the U.S. Commissioner of Education for the year ended June 30th, 1910, has been received from Washington. It deals almost exclusively with statistics, the previous volume, already noticed in these columns, having given great prominence to educational articles. We notice that for the school year 1909-10 the aggregate enrolment of pupils in secondary schools was 1,131,466, as compared with 1,034,827 in the previous year, an increase of 96,639. As the report points out, the number given as the enrolment of pupils in secondary schools may easily be several thousands below the actual number. The Washington Bureau of Education has the names of hundreds of public and private high schools from which no reports could be obtained. It is interesting to note that for twenty years the rate of increase in the number of secondary-school pupils has been greater than the rate of increase of population. In 1890 the number of such pupils was 367,003, or 5,900 to the million of population; in 1900 the number was 719,241, or 9,500 to the million; and in 1910 it was, as said above, 1,131,466, or 12,300 to the million. The per cent. of increase in population since 1890 has been nearly 47, while the per cent. of increase in secondary-school pupils has been 208.

THERE are 465,451 schools with 45,500,000 pupils in Europe, presided over by 1,119,413 teachers. According to the average, there is 1 teacher to every 45 pupils. Twelve years ago there was only 1 teacher for every 60 pupils. The number of teachers in Russia is about 195,000, while those in Germany number 168,000. In

Russia there is 1 teacher to every 644 inhabitants, and in Germany there is 1 teacher to 361. In England there are 177,500 teachers occupied, which allows 1 teacher to every 234 inhabitants. In Germany there are 3 illiterates to each 1,000 of population, while in England there are 10. The most illiterates are to be found in Russia, where there are 617 to every 1,000 inhabitants. In Germany 68 per cent. of the attendance at the schools is composed of children between the ages of five and fifteen; in Russia the average is only 27 per cent.

THE annual winter meeting of the Association of Assistant-mistresses will be held at the Grey Coat Hospital, Westminster, on Saturday, January 13th, 1912.

### SCOTTISH.

THE Carnegie Trust, in view of the fact that the demands for the payment of class fees this year has considerably exceeded the available income, has resolved to modify the existing scheme under which all fees have been paid in full. In the case of present beneficiaries the payment of class fees will be continued as formerly, but in the case of new beneficiaries the maximum grant that will be paid to any student has been determined as follows for the various faculties: arts, £9; science, £12; medicine, £15; law, £6; divinity, £6. Intending applicants for payment of fees must send intimation to the Secretary of the Trust, Merchants' Hall, Edinburgh, not later than September 30th, stating the university and faculty in which they intend to study, and whether they have or have not previously obtained the benefits of the Trust.

THE Education Department has just issued a new form, A 21, in connection with the scheme of post-intermediate courses laid down in the recently issued Circular 340. The form is to be returned to the department within a fortnight of the opening of the school session. Teachers following the general course outlined in Circular 340 are merely required to make an entry to that effect on the form and to return it to the department. Schools which propose to run special courses are required to enter on the form particulars of the subjects proposed, and the time allotted to each. In order that the department may have sufficient grounds for the acceptance or rejection of these courses, managers are expected to state the considerations that have led them to propose these special courses, to detail the facilities which the school possesses for their proper conduct, and to outline the purpose which they are expected to serve.

THE cost of the building and equipment of the new College of Art, Edinburgh, is expected to reach £76,000 or £77,000. Towards this the Government has contributed £40,000, and £20,000 has been obtained from private donors. The governors of the college expected to have considerable difficulty in raising the remaining £16,000 or £17,000, but the Electric Lighting Committee of the city, which has made a remarkable profit on the year's working, has generously come forward with the recommendation that part of the surplus be applied to meet the deficit on the building fund account of the new college. The Town Council and committee are heartily to be commended for the enlightened public spirit they have displayed in this connection.

At a special meeting of the governors of Robert Gordon's College, Aberdeen, the present shrinkage of the Education (Scotland) Fund was considered with special reference to this proposed building scheme. Lord Provost Wilson, who presided, said it is hoped that the shrinkage in the fund is only temporary. It would be intolerable if the educational

progress of the country were to be stayed indefinitely by accidents affecting the sources of supply of that fund. It is inconceivable that the central institutions which have been built or extended at such enormous expense, and are doing such conspicuous service to the trade and industry of the country, should now be "held up" because the excise and probate duties have failed to come up to expectation. Ultimately it was resolved to modify the original building scheme, and to ask Sir John Struthers to come to Aberdeen to discuss the whole position with them.

THE Privy Council has approved of the scheme submitted by the Court of Glasgow University and the governors of the Technical College for the affiliation of the college with the university. In the regulations to be observed in carrying out the scheme, it is provided that the procedure shall be by way of ordinance in conformity with the provisions of the Universities (Scotland) Act, 1889. One exception, however, is allowed. Contrary to the provisions of that Act, no arrangement requires to be made for the representation of the University Court on the governing body of the college, nor for the presentation of the college governors on the University Court. The recognition of the work of the Technical College as being of university rank has been amply deserved by the outstanding character of the teaching in the advanced classes, and the conspicuous place taken all over the world by its students.

At a meeting of the Edinburgh Provincial Committee for the training of teachers, it was agreed, on the motion of Prof. Darroch, to join with school boards and other educational authorities in approaching the Treasury in order to obtain additional grants for the Education (Scotland) Fund, in view of the claims which the new superannuation scheme would make upon it. At the same time it was resolved to approach the other provincial committees with the object of instituting a joint scheme of superannuation on a contributory basis, which would be applicable to all the officials and lecturers of the four provincial committees.

THE RT. HON. GEORGE WYNDHAM, M.P., Lord Rector of Edinburgh University, in addressing the students at the close of the summer graduation ceremony, took as his text the words "Be yourself." The whole tendency of the day is to grind down everyone and everything to a dead level of uniformity, but progress can only be assured by each one retaining his individuality. The man who imitates others or borrows his opinions merely adds to the dross of pretence, which in too great measure already alloys the manliness of this country.

#### IRISH.

On the occasion of the inauguration of the university extension lectures in Belfast, Dr. Starkie, the Resident Commissioner of National Education and chairman of the Intermediate Education Board, delivered an address on "The History of Irish Primary and Secondary Education during the last Decade." At the opening of the address he expressed a hope that the present decade was the last of the existence of separate primary- and secondary-school Boards. The first half of the address dealt mainly with the improvements in recent years in primary education, but in dealing with secondary education Dr. Starkie regretted that little progress had been made. He condemned the payment by results system which still prevails, and was sorry that it had not been possible to sweep away the general examination entirely, and to utilise the Board's revenue in creating a teaching profession which should offer an attractive and remunerative career to able and energetic laymen. He condemned the existing relations

between the Boards of national and intermediate education, and pointed out that there was no official connection between them, although this was a matter of vital importance owing to the very large numbers of pupils from national schools who entered intermediate schools. There was no co-ordination and no system of scholarships from primary schools, and in consequence the clever pupils were retained far too long in the national schools. Dr. Starkie laid it down also as axiomatic that no progress at all could be made in intermediate education until the secondary-school teachers were placed at least on as satisfactory a footing as the teachers in primary schools. He regarded the claims of lay teachers to salaries of £100 to £300 a year for men and £80 to £220 for women as reasonable, but beyond the powers of the Intermediate Board unless its revenue were immensely increased. He also supported the desire of teachers for security of tenure with a right of appeal in case of dismissal, and favoured a pension scheme. Teachers will hope that Dr. Starkie will try to carry out some of his proposals.

THE annual report of the Intermediate Education Board for 1910 was issued late in July. The total number of students presenting themselves for examination in 1910 was 11,900, of whom 7,967 were boys and 3,933 were girls. The amount of the school grant paid on the result of the 1910 examinations was £46,433, divided among 329 schools. The preparatory grade prize fund amounted to £966 10s., and the bonuses to choirs and orchestras £1,497. The report deals in detail with the fall in the income of the Board for the year 1910, and embodies the statement issued last December. Briefly, the income for 1909 was £84,000, and for 1910 £50,000. Out of these sums there were available for school grants and bonuses in 1909 £52,800, and in 1910 £18,200. In consequence of the grievous loss the schools would have suffered, the Board made up the difference out of its reserve, but has since received a sum of £29,568 as an additional grant from the Local Taxation account in order to make up the amount by which the proceeds of the Customs and Excise duties in 1909-10 fell short of the proceeds in 1908-9.

The report is further interesting, as it contains, for the first time, a summary of the conclusions drawn by the Board from the reports of its inspectors. The work of Irish schools compares very favourably with that of English schools. Their defects are mainly owing to circumstances not within the control of the schools, chiefly due (1) to want of proper financial support; (2) to lack of proper balance between literary subjects and science as a result of the payment for science being under the control of the Department, and being made on inspection and not on examination; and (3) to the late age at which so many students enter intermediate schools. The report recommends the payment to Irish schools on the English system of an ample block grant on all the subjects inspected. Owing to the lack of finances and the ease with which grants are obtained on the result of inspection from the Department, and the fact that the subjects paid for by the Department are also paid for by the Intermediate Board as the result of examination, a disproportionate amount of time is given to science, and the time given to literary subjects, especially to the ancient classics, has accordingly suffered.

THE Queen's University, Belfast, has now completed its arrangements whereby the teachers of agriculture, agricultural botany, agricultural chemistry, geology, botany, and zoology in the Royal College of Science, Dublin, are recognised as teachers within the meaning of the charter

and statutes of the University. The Belfast Gaelic League has offered £100 per annum for three years in order to raise the University lectureship in Irish to the dignity of a chair. Mrs. Septimus Harwood, of Sydney, has presented the University with £1,200 in order to found a new scholarship in French and German.

THE Alexandra College, Dublin, announces a new course of secretarial training on university lines. The course will extend over three terms, and in addition to the ordinary technical training in shorthand and typewriting will include instruction in business methods and commercial law, theoretical and practical work in cataloguing and classification, special classes in commercial French and German, and lectures in social economics. The course is suitable not only for women who intend to adopt literary or secretarial work as a profession, but also for those who, in connection with philanthropic work or in their home life, are often called on to do secretarial work.

THE Department has reissued as a separate pamphlet the ninth of the series of articles appearing in its *Journal* on some recently established technical schools in Ireland. This article deals with the Municipal Technical School in Newtownards, which has been reconstructed to meet the needs of modern technical instruction. It is by the principal, Mr. P. A. Cole, and is fully illustrated.

#### WELSH.

THE Carnarvonshire Education Committee recently secured the services of Mr. J. C. Smith, a Scottish inspector of schools, to report upon the elementary and secondary systems of education in Carnarvonshire. Mr. Smith has presented an exhaustive report. In it he deplores the fact that written examination is the only test at present much valued in Wales. The chief barrier, in his opinion, to the free development of elementary education in Carnarvonshire is the mode of awarding county scholarships. He says: "A scholarship, rightly considered, is an investment in talent designed to secure that boys and girls of ability shall not be debarred by poverty from doing that service to the State for which they are naturally fitted. This is not the view which prevails in Wales. Scholarships are there looked upon as prizes for successful effort. Parents and teachers have exalted their importance to an extent that threatens to overshadow the main function of the elementary school."

DR. THOMAS EVANS, who has been appointed as school medical officer for Swansea, has recently submitted his last report to the Pembrokeshire County Council on the schools of that county. Speaking of sanitation, he says there are in the county ten schools, and possibly more, without any description of lavatory accommodation. He points out that school lavatories are meant for the use of all the children, and not for an occasional child who happens to soil his hands by falling or otherwise. He goes on to report that, out of 127 schools, 83 have no supply of drinking water on the premises, and 40 are without even a supply of washing water. And he sensibly observes that "it will be a futile task to attempt to teach cleanliness to the children so long as the meagre amenities to cleanliness provided in the schools present before them daily a condition that belies or belittles its importance."

THE Welsh Language Society's Summer School has been holding its summer school at Llangollen. At the closing lecture of a series on the principles of language teaching, Mr. H. Howells, of Treorchy, emphasised the point that literature appeals more readily to the emotions than any

part of the school curriculum excepting music, and that this appeal is made particularly by good teaching of Welsh literature, but especially in the teaching of Welsh history. Repetition of poetry has so large a part in the cultivation of the emotions that no teacher should neglect it. Verse gives the child most experience in the musical side of literature. In some American schools each classroom has its poet's corner with poems, bust, picture, &c., of the poet whose work the class is reading. Every pupil has his own poet's book with illustrated cover designed by the pupil.

THE endowed secondary Howell's School for Girls at Llandaff has just celebrated its jubilee. The introduction of morris dancing was much enjoyed by visitors, and shows that the idea of progress is not inconsistent with the retention, or even the bringing back, of old customs. The freshness and simplicity of the old songs are an excellent corrective for much of the vulgar songs of the day, which only too readily are taken up by children. The return of the old folk-music would be a great gain for Wales, and the old out-of-doors dancing would be a great boon to the school children. Old English, Swedish, or Welsh country dances might well become more general in connection with schools if we could get rid of the notion that, because certain occupations are pleasant, it is probable they are uneducational. The opposite is often the case.

A SUMMER school in mining has been held at Cardiff for the County of Glamorgan. Mr. T. Richards, M.P., in an inaugural address, remarked that the conditions under which teachers and students labour must be improved. It is ridiculous to expect those who have been working in a high temperature all day to sit for hours in the evening in badly heated rooms. It is astonishing that in a coal-field employing 200,000 miners not even a room, much less a school, is set apart for experimenting with gas, coal-dust, and electricity. The local authorities amalgamate to provide colleges for teachers, and in Monmouthshire cider-testing and bee-keeping, hedging and ditching, are taught, but teachers and students of mining are left without apparatus and conveniences. Higher students of mining are provided for at the universities, but thousands leave the elementary schools for mining to whom a university training is impossible.

#### A SCHOOL HISTORY OF ENGLAND.

*A School History of England.* By C. R. L. Fletcher and R. Kipling. 250 pp. (Clarendon Press.) 1s. 8d.

WE cannot recommend this book as a school history. Its language is not suitable for the purpose. The author's favourite word for defeating an enemy is "smash," while as alternatives we have "broken to splinters," "finished," "pounded into a red rice-pudding" (all on p. 212), "jumped upon" (p. 216), and "mopped up" (p. 196). He uses the word "descendants" when he means "successors" (p. 59), and "best" (pp. 100, &c.) or "proper" (p. 71) instead of "nearest." We do not like "the rising generation was all looking" (p. 138) or "different to" (p. 128), nor do we admire the taste of the sentence: "Henry roared out 'Pope! What do I care for the Pope? Call my Parliament!'" (p. 116), to say nothing of its untruth to history.

The author often blunders on small technical points, points which may be unimportant for the general reader, but in a school book should be carefully stated or else omitted altogether. He is not clear as to "Saxons" and "English," and on p. 28 he has the strange phrase "Saxon

Englishman." He does not know that hides varied in size (p. 49). Magna Carta was not "signed" by John (p. 73, and picture, p. 74), nor did it guarantee to all men (p. 75) "a fair trial." The sentence as to "villeins" on p. 75 is misleading from want of completeness, and on p. 99 is positively incorrect. It is not true, as stated on p. 85, that "the eldest son of the King of England has always borne the name [should be title] of 'Prince of Wales.'" It is not correct to speak of Henry VII.'s (p. 113) or Charles I.'s (p. 147) taxation as "illegal." The account of Wolsey's rule on p. 115 is ludicrously incorrect, and he did not, as Chancellor, meet more than one Parliament. Martin Luther was not a "monk," nor did English reformers call themselves in Henry VIII.'s reign Protestants (both on p. 115) or "abolish the Pope" (p. 133). The word "church" is often used, in speaking of mediæval times, instead of "clergy" (pp. 55, &c.), and, in the story of later times, instead of "episcopacy" (pp. 150, &c.). The Bill of Rights is incompletely quoted on p. 179, and "Wesleyan communities" are not distinct from "Methodists" (p. 206). Are the "cliffs by Plymouth" (p. 133) "white"?

But there are graver faults than these. We are told (p. 28) that there are "no traces left of Latin or Celtic speech" in the early English language; that the victory at Tenchebray was won "over Norman rebels who were being aided by the French King" (p. 57). We are left to infer (p. 65) that criminals were tried by a jury in Henry II.'s reign, and nothing is said about ordeal, that Richard I. was captured by Henry VI. (p. 70), and that Simon de Montfort was a "thorough Englishman" (pp. 77-8). We are told (p. 87) that the House of Commons "generally" met as often as the "House of Lords" in Edward I.'s reign, and that it was only after a "struggle" that the clergy ceased to be represented in Parliament. Other such misstatements are that in Confirmatio Cartarum Edward I. promised to "take no taxes at all without consent of Parliament" (p. 88), that he seized the wool of the clergy in 1296-7 (p. 89), that Avignon was in France (p. 89), that all English kings since Edward III. called themselves kings of France (p. 92), that "the popes got back to Rome in 1415 after the great 'Schism'" (what this means we cannot tell), that "the laws about burning heretics were abolished" in Edward VI.'s reign (p. 124), that Englishmen took English goods to Spanish America in the reigns of Edward VI. and Mary (p. 133), that all James I.'s Parliaments were dismissed in anger (p. 145), that Charles I. resolved to force the Prayer Book on Scotland (p. 147), that the covenant was signed all over Scotland (p. 148), and that the Scots "sold Charles to the English Parliament" (p. 157). The "Pilgrim Fathers" are called Puritans on p. 166, and on p. 174 William of Orange is described as the leader of Protestant Europe (in spite of his strong alliance with Austria). The union of the English and Scottish Parliaments is dated 1708 (p. 181), and the serious danger of a Franco-Spanish alliance is dated from "Utrecht" until 1808 (p. 188). We are assured (p. 188) that "there is practically nothing to record of the reign of George I.," and that Spain in 1737 began to attack "our trade in America" (p. 189) (not a word about smuggling). Of the elder Pitt we are told (p. 194) that, "instead of borrowing from Germany troops to defend Britain, he sent regiment after regiment of British troops to help Prussia in Germany against France and Austria." The story of our quarrel with the United Netherlands in 1780-1 is shortened and misrepresented in the words: "Our ally Holland joined France" (p. 201), and in spite

of the commercial treaty between France and the revolted colonies, we are told (p. 202) that France received no trading privileges. "For Britain it would necessarily be a sea war, and therefore a war for empire, trade, and colonies" (p. 210), is a curious inversion of cause and effect, and that "nation after nation" (p. 210) rose against France in the war of the Revolution is an anticipation of the events of 1808-14. We are told (p. 214) that Napoleon wished to put one of his generals on the throne of Portugal in 1808, that all the Indian princes are sworn subjects of King George (p. 241), and that "Egypt came to us" in 1882 (p. 243).

The author has evidently not taken the pains to make his book an accurate history. We therefore proceed to a discovery of his objects. It is not to write a school book free from technical details, for whereas he dismisses "Crecy" and "Poitiers" in a contemptuous line, he goes out of his way to mention the fate, though not the names, of Henry VIII.'s last three wives (p. 120), gives half a page (143) to the Gunpowder Plot and speaks of "the glorious victory of Agincourt" (p. 102). He betrays strong prejudices against Ireland (pp. 21, 69, 151) and against the Popes (pp. 35, 79, 83, 117, 122), and antedates the absolute monarchy of the Papacy from the time of the conversion of the English, which he attributes entirely to Rome (pp. 28, 33). He is anti-clerical in his account of the Middle Ages, but admires the English Church since the Reformation, and dislikes those who oppose "our beloved," "our beautiful and dear" Prayer Book (pp. 120, 159), which he regards as "Protestant" (pp. 123, 137). He therefore describes the whole system of government from 1649 to 1660 as a "sham," though he admires Oliver Cromwell and has no good opinion of Charles I. But his greatest scorn is for the "uneducated," for democracy, and for party government. Even George III.'s attempt to "make a 'royal' party" falls under his lash.

These prejudices, however, do not, in our opinion, explain the object of the book, much as they militate against its success as an ideal text-book. The subject which the author seems most to have at heart is the naval and military. He seems to judge the successive rulers of the country according to their willingness and capacity to increase the efficiency of the armed forces, and regards all other matters as trifling in respect of this. That explains his constant insistence on the matter, and many of his omissions as well, though lack of space naturally accounts for some of these. Even when (p. 220) he thinks "it is desirable, in this last chapter, rather to state what did take place than to try to guide your opinions," he so far forgets his resolution as to express an opinion (p. 225) on "those who get up riots," on the misfortune (p. 230) that "people who commit high treason [who are these? we wonder] are now too often let off," on the advantage of a moderate import duty on corn (p. 233), and, above all, on our duty to have an invincible navy (p. 235) and to learn soldiering at once (p. 245). His faith is expressed perhaps most plainly in a sentence on p. 162: "To serve King and country in the Army is the second best profession for Englishmen of all classes; to serve in the Navy, I suppose we all admit, is the best."

Now this makes the book a good pamphlet for the Navy League, though whether, in view of its inaccuracies, it would be wise to use it for that purpose, is doubtful; and, of course, we express no opinion in these pages on the merits or demerits of the school of thought embodied in that league, but it makes the book quite unsuitable as a school history of England. Whatever opinions grown men and women may have as to the best lines of conduct to be

pursued by our country, we do not well to make a one-sided statement into what for our boys and girls would be an authoritative guide. We have made no comment on the poems, which we suppose are Mr. Kipling's contribution. His style and thoughts are well known. We have confined our remarks to the prose, which, from the occasional use of the singular personal pronoun, we have assumed to be from the pen of Mr. Fletcher; and we regret that, as we said at the beginning, we cannot recommend the book as a school history.

### THE AGE OF THUCYDIDES.

*Thucydides and the History of his Age.* By G. B. Grundy. xx+554 pp.; with maps. (Murray.) 16s. net.

A FEW years since Mr. Cornford wrote an attractive book about Thucydides, in which he made the history into a kind of tragic drama. Under an imaginative form he concealed a principle which should explain the real motives of the Peloponnesian War: it was due, he thought, to the action of trade interests. It is odd to find the same idea in Dr. Grundy's book, presented in a very matter-of-fact way, without *Hybris*, *Nemesis*, and the rest of Mr. Cornford's machinery: odder still that Dr. Grundy does not seem to have met with the earlier book. Perhaps he is angry with Mr. Cornford for making out Thucydides to be a poet rather than a historian; perhaps he hit on the idea independently. At any rate, he believes in the historian as firmly as other people do. He will not have him to be biassed or neglectful of facts; the text is not corrupt and the historian is to be trusted. With this view most scholars will agree, and they will be glad to find it to be the view of a critic so sound as Dr. Grundy.

But, like all discoverers, Dr. Grundy runs his hobby hard: he brings everything to an economic level. His view is most original as applied to Themistocles and to Pericles. Whether consciously or not, both these are supposed to have acted as they did with the purpose of finding employment for the unemployed. The poorer citizens found a living in Themistocles's fleet, and in the great public works that Pericles caused to be made. Whenever any cause checked these two outlets, there was trouble. It is certainly true that the purpose here assumed was fulfilled by their policies; but it is also possible that the motive in each case was something bigger. They may, in fact, be compared with Mr. Chamberlain, who with a motive of wider statesmanship advocated a course which he believed would relieve material distress. Dr. Grundy does not draw out this parallel, but he does suggest a number of points where ancient Greece and modern England are alike. If we have not the canker of slavery which complicated the ancient problem, we have almost as dangerous a complication in the ignorance of those who have power, both high and low. It is not difficult to see the statesman's anxiety in these pages of new history. In particular, he points out how Pericles's poor relief did the maximum of good with the minimum of corruption.

Dr. Grundy well shows that the corn supply was the crux of Athenian policy. He tries to find a cause for this, and believes it to be that the soil was incapable of feeding the population. What the population really was is a difficult question, but what is to be inferred about it appears in these pages.

We have not space to discuss the many questions raised in this book, but we must mention the art of war. Dr. Grundy's essay on this is original and instructive; he shows how the tactics were dependent on the hoplite, and how late the Greeks were in finding the use of light troops

or of cavalry. Hoplite warfare is only possible in the plains: Demosthenes found that in Aetolia, where he learnt the lesson we learnt in the Transvaal. An appendix, almost as long as the history, discusses the composition of Thucydides's works. Dr. Grundy holds that there was a first draft of the first half of the history, including the Ten Years' War, which was modified and added to when the work was prepared for publication as a whole. He seems to have changed his conception of the war as time went on—a very natural supposition—and to have intended a further revision of it if he had lived.

It will be seen that this is an important book; but it is really two books in one: a history, and a critical examination of the text. It is written also in a style very unlike Thucydides, verbose and heavy, which somewhat obscures the meaning. While we cannot but admire the learning of the book, we cannot but wish it had been pruned.

### TEACHING BY ACTING.

*The Dramatic Method of Teaching.* By Harriet Finlay-Johnson. 256 pp. (Nisbet.) 3s. 6d.

THE only fault we can find with this fascinating book is its title. The author is evidently one of those rare persons, a born teacher, i.e., a genius in her profession. It is not always recognised that the teacher makes the method, and not the method the teacher. If Miss Finlay-Johnson, who has now given up teaching for matrimony, had called her book "*My Method of Teaching*," she would have been more of an egoist, perhaps, but there would not have been the same temptation to others less gifted to rush in, and endeavour to graft on to their own, plans which *must* depend for success upon individual talent. Every teacher knows that he is bound to make use of whatever dramatic gift he may possess in order to get at the minds of his class. Miss Finlay-Johnson did much more than this, according to her own account, in the village of Sompting. She set the children—nay, the whole population of the village—"acting" for all they were worth. There must, we think, have been less inspired moments when the happy villagers were, so to say, "off the stage." But the charm of the situation was that even *on* the stage these children were "natural, simple, affecting." For all their stage work was, in the real sense, drawn out of and not pumped into them. Enthusiastic teachers are sometimes apt to imagine that they have actually accomplished what they have in reality only dreamt. This teacher describes how her pupils (may we utter a protest against the use of the term "scholars" for children at school?) enlivened not only their history and English lessons by enacting little scenes of their own composition, but even learnt the dry bones of geography, and made arithmetical calculations by the same means. We were tempted to think there was some unintentional exaggeration here, but a careful study of the excellent photographic groups more than bears out the text. These children are shown "dressed up," for the most part, in simple fashion, just as a child left to itself dresses up, sometimes even grotesquely, but their pose and expression of countenance make it clear that they are absolutely and thoroughly "in" their parts. Even without the letterpress these pictures speak volumes. Indeed, the series of photographs, without a single word of print, testifies to the beautiful and harmonious influence which must have come somewhere upon these happy children. Not all village children have the rapt, earnest, and unselfconscious expression of these. There is a purity and dignity in their attitudes that is not always found even



among those of a higher social class. We should hear less of rural depopulation if all village teachers were as gifted, as right-minded, and as devoted as Miss Finlay-Johnson must have been. Though, as we hinted, it would not be wise for many teachers to adopt her methods wholesale, there are few who could not learn something from this modest account of a remarkable achievement. F. J.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

*Pascal, Pensées Choieses.* xviii+168 pp. (Dent.) Cloth, 1s. 6d. net; leather, 2s. 6d. net.—To their charming series *Les Classiques Français* the publishers have now added the "Pensées" of Pascal, to which M. Émile Boutroux contributes an admirable preface. A portrait of Pascal, from an etching by Mr Symington, makes an attractive frontispiece.

*Dumas, Edmond Dantès.* Adapted by M. Ceppi. xii+77 pp. (Methuen.) 1s.—The text is based on a well-known episode from "Monte Cristo." The introduction deals briefly with Dumas, and gives some account of Dantès. There is a good vocabulary. The text is well printed; the number of slips is small.

*Le Trésor de Carnac.* By Clementina C. Stanton. 32 pp. (Blackie.) 4d.—This "Breton play" is quite suitable for school use, for class-reading, and for acting. In a future edition it would be well to give the stage directions in French. The poem on p. 21 infringes several fundamental rules of French prosody.

*Science German Course.* By C. W. P. Moffatt. xii+243 pp. (Clive.) 3s. 6d.—We are glad to notice that this book has reached its second edition. Eleven extracts of a somewhat more difficult character have been added to the *Erste Lesestücke*, and two botanical extracts have also been added. The extracts in German type have now been removed to the end of the book.

*F. Gerstaecker, Germelshausen.* Edited by D. L. Savory. xii+148 pp. (Rivingtons.) 1s. 6d.—This is the first volume of Prof. Savory's "Easy German Texts," edited similarly to his "Elementary German Texts." The explanations and exercises are entirely in German. The edition is an example of reform-method work at its best.

*French Songs. German Songs.* Edited by J. F. C. Boyes. 32 and 51 pp. (Hirschfeld.) 6d. net each.—These booklets contain many of the songs suitable for school use, the German being more full than the French. At the low price these books should have a good sale.

### Classics.

*Stories from Apuleius.* Rewritten and adapted for middle forms by L. R. Strangeways and R. S. Wood. xvi+118 pp. (Nutt.) 2s. net.—Apuleius is an incomparable boy's book—*salva reverentia*, with omissions. He has been adapted before. This adaptation seems to be fairly simple, perhaps not quite enough, but it is difficult to say without trying. There is no doubt, however, that the right way to treat Apuleius is to tell his stories by word of mouth; this book may be used after that to revise. The notes are few, and mostly satisfactory: some, however, seem to us quite out of place, as those on elementary syntax, and the long note on *civis* (p. 77). The vocabulary is complete: another mistake, if the editors

have any definite plan of work. A book at this stage only needs a small list of new words. Long vowels are marked in the text, always a useful thing, and also in the vocabulary, which is of little or no use.

*Camillus and other Stories from Livy.* Edited, with Introduction, Maps, Notes, and Vocabulary, by G. M. Edwards. xvi+124 pp. (Cambridge University Press.) 1s. 6d.—These stories have been simplified a little, chiefly by omission: they are meant for the third year of Latin reading. The notes are good. We cannot say the same of the plan of the book. We have often tried to urge in these pages that an English running analysis is not proper to any school book: it is the boy's work to make the analysis. Again, a complete vocabulary is out of place in all school books, except those of the first year. The second and third years should include all new words, *i.e.*, those which do not belong to the first-year vocabulary as laid down in the plan. Or, if they are given, they should be explained in Latin. But it is clear that there is no general plan before our editor. We have no doubt, however, that this will be preferred in most schools to a reasoned plan, because most schools have no reasoned plan in their work.

*Clari Romani. Aemilius Paulus.* Edited by F. R. Dale. viii+112 pp. (Murray.) 1s. 6d.—Mr. Dale has a good subject, and the work is welcome. It is of the same type as the others of the series, already noticed here. We regret that the source of the story is not indicated, nor how the editor has dealt with his text. The question papers are useful; it should be remembered, of course, that the sentences for translation are not enough exercise on the book, and the Latin questions only hints. The vocabulary, as before, shows no signs of a reasoned plan of work, and there is a chance missed. The index of syntax cannot be defended educationally. As with the other books, we see an excellent idea worked out without a clear plan.

*Aristotelis De Arte Poetica Liber.* Recognovit brevique adnotatione critica instruxit I. Bywater. Editio altera. Not paged. (Oxford: Clarendon Press.) Paper, 1s.; cloth, 2s.—Mr. Bywater first published this book in 1897; he now reprints the text and critical notes of his larger edition.

*Selections from the Metamorphoses.* Edited by H. Jackson. vi+78 pp. With Vocabulary. (Arnold.) 1s. 6d.—This contains ten familiar stories, Deucalion, Daedalus, Atalanta, Cephalus, Iason, Orpheus, Midas, Hecuba, Pyramus, each from fifty to ninety lines. Each ten lines has an English summary of three or four lines, and notes. We must say of this as of so many books: too much help. The English summary is a specially bad thing. For the rest, it will satisfy those who prefer so much help.

*Livy, Book II.* Edited by J. F. Stout and A. J. F. Collins. 136 pp. (Clive.) 2s. 6d.—While this book is open to the same criticism as others, that it gives too much, it has a merit in its notes on archaeology and constitutional questions. These may be out of place in a school book; but they are certainly well done here. The introduction is short and to the point. We should call this a useful edition for those who want to prepare for an examination.

### English.

(1) *Blackmore's Lorna Doone.* Edited by A. L. Barbour. 642 pp. (Macmillan.) 1s.

*Kingsley's Westward Ho!* 644 pp. (Macmillan.) 2s. 6d.

*Kingsley's Hereward the Wake.* 419 pp. (Macmillan.) 2s. 6d.

- Westward Ho!* Abridged by E. Thompson. 240 pp. (E. Arnold.) 1s. 6d.
- The Cloister and the Hearth.* Abridged by J. Connolly. 248 pp. (E. Arnold.) 1s. 6d.
- Guy Mannering.* Edited by A. D. Innes. 576 pp. (Clarendon Press.) 2s.
- Kenilworth.* Edited by A. D. Innes. 568 pp. (Clarendon Press.) 2s.
- Fortunes of Nigel.* Edited by S. V. Makower. 640 pp. (Clarendon Press.) 2s.
- Robinson Crusoe.* Part I. Edited by A. C. Liddell. 332 pp. (Clarendon Press.) 2s.
- (2) *Stories from Germany.* By C. L. Thomson. 187 pp. (H. Marshall.) 1s.
- Stories from Old French Romance.* By E. Wilmot-Buxton. 119 pp. (Methuen.) 1s. 6d.
- Stories of King Arthur.* Selected by R. S. Bate. 114 pp. (Bell.) 1s. ?
- Stories from Dante.* By S. Cunningham. 256 pp. (Harrap.) 1s. 6d.
- Stories from Shakespeare.* Retold by T. Carter. Illustrated by G. D. Hammond. 286 pp. (Harrap.) 1s. 6d.
- Tales from Malory.* Retold by V. W. Cutler. 125 pp. (Harrap.) 6d.
- Tales from Dickens.* Selected by J. W. McSpadden. 128 pp. (Harrap.) 6d.

All these old friends (1) named above are about the same size, except "*Lorna Doone*," which is one of the pocket classics. The introduction is delightful, as it should be, when speaking of Blackmore. What a curious accident it was that this book, the precursor of so many similar works, should have gained its fame in the way it did. Truly it is difficult to say what makes a book a classic. All the books are introduced, and the Scotts and Robinson give us well-known illustrations. Notes and glossaries accompany all. They are a handsome set.

They are followed by a series of story-books (2). It is an admirable idea to make children familiar with the Neckan, Lohengrin, Parsifal, Aucassin, Ogier, and Roncesvalles. Miss Cunningham's work is rather a historical commentary than an abridgment; but it was needed for Dante. When is the great translation to appear? and when is Dante to be anything but the poet of the few—and these few the lucky people who read Italian aloud and read it well? It seems wicked to say we welcome Dr. Carter's stories from Shakespeare as a change from Charles Lamb; but Lamb himself would have poured fun on the everlasting re-editing of his tales. The Dante and Shakespeare are beautifully illustrated; but the publishers need not have illustrated the Dickens and Malory.

*An Epitome of English Grammar for Use in Schools.* 77 pp. (Dent.) 10d.—There is little to differentiate this book from hundreds of others which present the husk of English grammar in the same uninteresting way. In his preface the author says that, in order to be quite up-to-date, he has included articles consistent with the bulk of the Recommendations of the Joint Committee on Grammatical Terminology. We confess that we have failed to discover the articles to which the author refers, unless, indeed, the reference is to a few notes of the type: "the term *multiple* may be used instead of *compound* in Example (1)." However, the book is quite sound as an epitome; the only question is whether children need it.

*A Study of Words.* By E. M. Blackburn. vii+223 pp. (Longmans.) 3s. 6d.—The author explains that this book is not a dictionary nor a substitute for dictionaries, although he has employed the dictionary form. It is, at any rate, we are glad to find, a very stimulating introduction to the study

of vocabulary; and the deductive method used, with derivation as a starting-point, is well calculated to interest young students. We think that the author has been well advised in omitting many common, and most uncommon, words, and in not entering into alternative explanations in the derivations he gives. Occasionally no derivation is assigned at all, especially in the case of words coming from Eastern languages; we should have been inclined to yield to the expectation of readers even here, although the language were quite unmeaning to the young student; they would, at any rate, be saved from much fruitless speculation, for instance, in such a case as *carboy*, if after the meaning the Persian *qarabah* were added.

(1) *Name of Places in a Transferred Sense in English.* By Carl Elvergren. (2) *The Language of Swinburne's Lyrics and Epics.* By Gunnar Serner. (3) *The Language of Robinson Crusoe.* By Gustaf L. Lannert. (Cambridge: Hefter.) 2s. 6d. net.—These three books are all theses offered by Swedish students for the doctorate of Swedish universities. They have been arranged for British publication by Mr. Fearenshe, until lately the English Lektor at Lund. The scholarship and research which have been expended on them testify to the high standard attained in the faculties of English in Sweden, for they are valuable contributions to the philological study of our language.

#### Mathematics.

*Projective Geometry.* By O. Veblen and J. W. Young. Vol. i. x+342 pp. (Ginn.) 15s. net.—The authors define their attitude towards the subject and its development in the following words: "The starting-point of any strictly logical treatment of geometry (and indeed of any branch of mathematics) must be a set of undefined elements and of unproved propositions involving them; and from these all other propositions (theorems) are to be derived by the methods of formal logic." It need hardly be said that a treatise written in accordance with the principles here enunciated is not one for babes. Students, however, who are sufficiently advanced will find that a study of the work will not only inform them of the nature of abstract geometry, but will also clarify their conceptions of the essential features of mathematical science in general. The existence of a class of elements is assumed, totally undefined and devoid of content except in so far as they are subject to a set of assumptions which are arbitrary and may be independent, but must be consistent. The particular set of elements and assumptions which are here considered and the consequences of which are developed are those of projective geometry in the most general sense. At each successive step attention is directed to the fundamental assumptions utilised in the subsequent reasoning, and thus the extent of the validity of the result is immediately obvious. Metric geometry requires the discussion of delicate points relating to linear order and continuity, and it has been considered advisable to defer all such matters to the second volume. The first volume contains a discussion of the projective relations of the primitive geometric forms of one, two, and three dimensions, and the application to harmonic constructions, the theory of conics, involution, &c. The identity of the fundamental assumptions of algebra and geometry is the foundation of co-ordinate geometry, and in connection therewith an account is given of von Stundt's algebra of throws. The book is packed full of matter, and the above rapid summary will indicate that it is one of profound interest, whether regarded from the more purely mathematical or from the philosophical point of view.

*Manual Instruction for Juniors Correlated with Practical Arithmetic.* By S. Gibson. viii+88 pp. (Arnold.) 2s. 6d.—This book appears in response to the requirements created through the adoption by the Education Department of what may be termed the correlation theory of education. The excess of interest which the pupils show in a certain favoured subject is used to compensate the deficiency of interest in another by so interweaving them that progress in the one necessitates progress in the other. The book before us really deals with the correlation of arithmetic and geometrical drawing with manual work. The children are required to cut out or model various geometrical figures and solids, careful attention being paid to the measurements involved. We are inclined to think that the author has allowed his enthusiasm for the method to run away with him, and that the course of work here described, if followed closely, would absorb time which might be much more profitably spent in other ways. There is little education in setting a class to cut coloured strips of paper and paste them in books to form the Roman numerals from 1 to 39. The general conception is sound, but it requires much pruning.

*A School Calculus.* By A. M. McNeile and J. D. McNeile. xii+375 pp. (Murray.) 7s. 6d.—This work resembles several others that have been published recently in that it is designed to introduce boys at a somewhat earlier age than has hitherto been the case to the principles of the calculus with a view to their immediate use in elementary applications. The abstract character of the functional idea renders necessary an approach to it through the consideration of concrete cases, where the law of variation expresses relationships which admit of easy numerical illustration. The authors, recognising this, have throughout given great prominence to numerical as distinct from purely algebraic results. The treatment is practical, little regard being paid to purely analytical developments, but at the same time a good working basis is provided for a more thorough and abstract study of the subject. Excellent type and carefully drawn diagrams greatly enhance the value of the book.

#### Science and Technology.

*The Star Pocket-book.* By R. Weatherhead. 80 pp. (Longmans.) Sewed, 1s. net; cloth, 1s. 6d. net.—The aim of the author of this book is to show how familiarity with the chief stars enables direction to be determined accurately at night, provided that at least some of these stars are visible. By brief notes and clear maps he shows how stars can be identified, and then explains, with examples, how to determine north and south direction by reference to a celestial pole, by transits, or by simultaneous transits of certain pairs of bright stars. Of course, most night travellers or scouts in an unknown country would carry a compass with them, and thus be independent of clear skies, but there are occasions when a working knowledge of the contents of this little volume would be decidedly useful. Boy scouts and young geographers will find interest and advantage in taking the book as their guide to celestial beacons visible at different times of day and year. The author's intention is purely practical, so he may be forgiven such an awkward remark as: "Owing to the sun's own motion, the revolution of the earth on its axis takes about four minutes less than one day of twenty-four hours." Of course, the difference between solar and sidereal time is not due to the "sun's own motion" at all, but to the revolution of the earth around the sun; and the earth would rotate on its axis in four minutes less than twenty-four hours of mean time if the sun did not exist.

*Wall Diagrams of Zoological and Botanical Specimens.* (Gallenkamp.)—The two specimen sheets before us, each about  $3\frac{1}{2} \times 2\frac{1}{2}$  feet in size, are extremely effective, the colouring of the diagrams showing up clearly at a distance on the dull black background. Each diagram represents one species only, and includes a view of the complete specimen as well as various aspects of its development and minute structure. Thus in the specimens submitted, the sheet illustrating the fern *Polypodium vulgare* contains fifteen figures, while that of the common mushroom contains nine. In such diagrams it is desirable to sacrifice a certain amount of detail for the sake of clearness and simplicity, and in most of the twenty-four figures before us this has been done with discretion and excellent results. In the sketch of the fern-antheridium, however, more detail is shown than actually exists. The illustrated descriptive keys supplied with the diagrams need revision. In this country *Agaricus campestris* is not commonly known as "champignon," nor is the word "intersection" properly used of the views shown. Again, in the key to the fern diagram, we find "frond stipe or stem" instead of "leaf stalk," and vascular "fascicles" instead of "bundles," besides such obvious solecisms as "antheridæ" and "archegoniæ." Each of the eighty-two sheets in the series is supplied, cloth mounted with eyelets, at 4s. 6d. net.

*Preliminary Physiology.* By Wm. Narramore. xix+220 pp. (Methuen.) 3s. 6d.—This book covers the first-stage syllabus of the Board of Education, and will be useful for students preparing for examinations of this standard. Many of the photomicrographs reproduced are very good.

*Simple Lessons in Nature Study.* By John O'Neill. 122 pp. (Blackie.) 1s. net.—But for one or two slips, this book is quite satisfactory, though without any very original features. Teachers will find it to contain useful material for the preparation of lessons.

*Wayside and Seaside.* By C. G. Kiddell. 238 pp. (Pitman.) 1s. 6d.—This, the intermediate book of the Selborne Nature Readers, consists of simple and chatty lessons on common plants and animals. It contains an abundance of effective pictures.

*The Story of the Seasons.* By Margaret Cameron. 152 pp. (Chambers.) 9d.—Very simple, and suitable for young children. Contains some good pictures.

*The Study of Plant Life.* By M. C. Stopes. xii+202 pp. (Blackie.) 3s. 6d.—This book, favourably reviewed in THE SCHOOL WORLD on its first appearance in 1906, has now reached a second edition.

*Practical Nature Study for Schools. Part I. Questions for Pupils.* By Oswald H. Latter. 260 pp. (Dent.)—Was commended in THE SCHOOL WORLD when first published. It is now issued in six sections at 8d. each.

MR. E. LEITZ (9, Oxford Street, London, W.) has issued three catalogues recently which are of great interest to lecturers, microscopists, and others. The first describes projection apparatus and drawing appliances involving the principle of projection. As may be seen from the catalogue, there have been within the past few years many improvements in the devices for exhibiting on screens not only lantern-slides, but also spectra, as well as actual specimens, living or not, transparent or opaque, microscopic or otherwise. The second catalogue relates to

photomicrographic apparatus. It contains two plates of actual photographs showing the excellent results obtainable by the use of the firm's apparatus and objectives. The third deals exhaustively with prismatic binoculars. All catalogues are illustrated by interesting diagrams.

#### Miscellaneous.

*Matriculation Directory.* No. 58, June, 1911. 63+152 pp. (The University Tutorial Series.) 1s. net.—The private student out of reach of suitable classes and anxious to matriculate at the University of London cannot do better than procure this guide and follow the sound practical advice it offers. The model answers to the matriculation papers of June last will assist intending candidates in learning how to arrange their solutions. It is astounding to read that the successes gained by the University Correspondence College at the University of London during the last eighteen years reach 16,608.

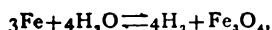
*Voice and its Natural Development.* By H. Jennings. xvi+220 pp. (Allen.) 3s. 6d. net.—Sir Morell Mackenzie used to compare teachers and singers who devoted much preliminary attention to the examination of the throat in connection with voice production to the introduction of boxing lessons by a study of the muscles of the forearm. What he probably intended to convey was that the essential condition for the development of the voice is practice; but however this may be, it is certain that the right kind of practice is greatly assisted by a knowledge of the structure and action of the organs concerned in the production of vocal sounds. In the present volume Mr. Jennings is concerned chiefly with the practical side of voice production—training for speech and song—and deals with its anatomy by illustrative exercises rather than by the statement of functions and laws. The book provides valuable guidance for all who desire to train their voices for public speaking or singing, and by following its directions the reader will learn how to correct his defects and cultivate a good vocal tone in so far as that is possible without personal instruction by a critical teacher. The author, unlike some vocal exponents, is opposed to abdominal breathing, "the practice of which," he says, "is not only opposed to all physical laws, but in many cases it has caused incalculable internal injury to the student."

#### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

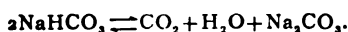
#### Reversible Reactions.

THE chemistry syllabus of the London Matriculation examination especially mentions the reversible nature of the reaction between iron and steam:



the reaction being only complete if the whole of one of the gaseous products be removed. The reaction, however, does not lend itself to elementary experimental work.

Another reversible reaction that can be studied experimentally is represented by the equation:



If a weighed quantity of sodium hydrogen carbonate be decomposed at the temperature of boiling water, the amount of carbon dioxide liberated can be measured, and

the completeness, or otherwise, of the reaction determined. If the apparatus shown in Fig. 1 be used, the carbon dioxide remains in contact with the other products of the reaction, and it will be found that the action comes to an

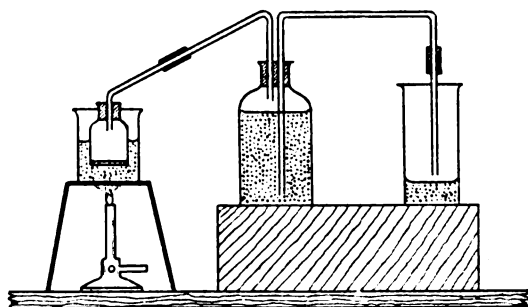


FIG. 1.

end when from 60 to 80 per cent. of the sodium hydrogen carbonate has been decomposed. Concordant results are not to be expected, as the smaller bottle contains air at the beginning of the experiment and not carbon dioxide; but for the purpose of the experiment it is sufficient to show that when the carbon dioxide is not removed from the sphere of action the reaction is not complete. The volume of gas should be measured while the water in the beaker is still boiling, and the necessary corrections for the temperature made; if the contents of the small bottle be allowed to cool some of the gas is reabsorbed.

To carry the action to completion, the apparatus shown in Fig. 2 may be used. The carbon dioxide may be removed by passing a slow current of air through the flask during the experiment, or, if this be not convenient, the gaseous contents may be blown out at five-minute intervals. A little water should be added to the bicarbonate in both cases.

Owing to the difficulty in obtaining pure sodium hydrogen carbonate, the sample used should be quantitatively analysed. The material used for the experiments, the results of which are given below, contained 98.5 per cent.  $\text{NaHCO}_3$ . The numbers given in column A represent the percentage weight of the bicarbonate decomposed when the evolved carbon dioxide was not removed from the sphere of action, while those in column B show the percentage decomposed when the carbon dioxide was removed.

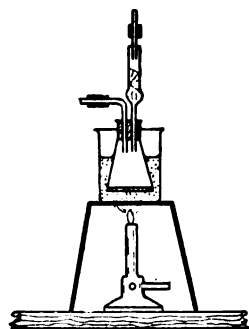


FIG. 2.

| A. |     |    |     | B.  |     |    |     |
|----|-----|----|-----|-----|-----|----|-----|
| 63 | ... | 62 | ... | 94  | ... | 96 | ... |
| 75 | ... | 71 | ... | 100 | ... | 96 | ... |
| 68 | ... | 70 | ... | 97  | ... | 92 | ... |
| 62 | ... | 73 | ... | 98  | ... | 98 | ... |
| 80 | ... | 74 | ... | 95  | ... | 98 | ... |

This piece of work was carried out by the class as the result of the following experiments. A mixture of calcium carbonate and crude sodium hydrogen carbonate was to be volumetrically analysed. Its composition was found to be calcium carbonate 50 per cent., sodium hydrogen carbonate 40 per cent., sodium carbonate (calculated as  $\text{Na}_2\text{CO}_3 \cdot 5\text{H}_2\text{O}$ ) 7 per cent. Suggestions were then invited as to other methods by which these results might be confirmed. The mixture was heated to  $120^\circ \text{C}$ ., and loss of weight was found to correspond to that expected; on heating to  $900^\circ \text{C}$ . the results showed that the whole of the carbon dioxide in

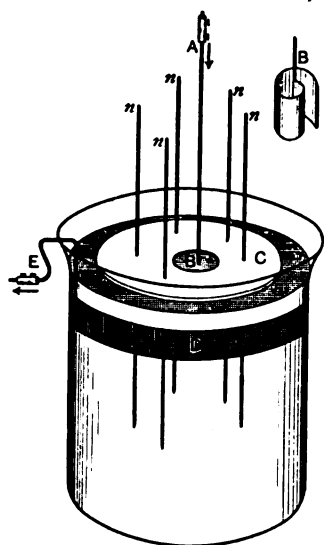
the mixture was expelled. It was then proposed to make use of the apparatus shown in Fig. 1 to determine the amount of bicarbonate present, but the results, besides being low, were not concordant. The suggestion that the method was at fault was at once met by the proposal to try it with the pure substance; the results of these experiments have been given above. The class was unable to offer any explanation for the "failure" of the experiment, but when the reason was given the experimental method for testing it was soon devised.

J. HART-SMITH.

Secondary School for Boys,  
Battersea Polytechnic, S.W.

#### Rotation of a Magnet-pole.

THE following experiment, to demonstrate the rotation of a magnet-pole round a wire conveying a current, may be new to some readers of *THE SCHOOL WORLD*. An oak disc C, about 10 cm. diameter, with a central hole 1 cm.



diameter, carries five strongly magnetised knitting-needles with similar poles uppermost. The needles are about 15 cm. long, and at least one-half of each needle is below the surface of the disc. D is a band of thick sheet copper fitting inside a wide beaker, and with a terminal wire E of thick copper soldered to it. The beaker is filled to a level above D with a strong solution of copper sulphate to which 5 per cent. sulphuric acid has been added. AB is a thick copper wire termin-

ating, just below the liquid, in a spirally bent piece of thick sheet copper, as shown in the inset.

When the apparatus is arranged as shown in the diagram, and a current of 4 to 5 amperes sent down AB, through the liquid, and out at E, the disc rotates in a clockwise direction if the north-seeking poles of the magnets are uppermost. The speed of rotation can be varied by varying the current strength, and the rotation of a south-seeking pole can be observed by reversing the disc. It is advisable to varnish the disc and needles.

Kidderminster.

H. E. HADLEY.

#### Modern Language Teaching.

It is both hopeful and encouraging to find in Mr. T. Dyson's article on "Modern Language Teaching" in your issue for July an avowed "direct method" advocate sufficiently alive to its difficulties and sufficiently hardy in his convictions to set forth those difficulties in a professional magazine: hopeful, because it is to be expected that the ventilation of our failures will alone lead to the discovery of their remedy; encouraging, because when one finds others willing to admit defeat it is easier to bring oneself to do so, and that is the first condition of cure. Hitherto the enthusiasts have had things altogether their own way, and it often seems that they must live in a different world from that of the ordinary modern language master, so marvellous are their results and so ideal their

methods. It is time that the other side of the picture should be exhibited to the view, if not of the general public, at any rate of the profession.

With the greater part of what Mr. Dyson says I am in hearty accord; his main contentions must, I think, appeal to teachers working under average conditions as just and moderately stated. An opportunity may occur of dealing with some of his points another time, especially the treatment of large classes of average or backward boys. The transition from the very elementary (pictorial) stage to that in which the reading matter forms the basis of the teaching has largely engaged my own attention; and perhaps I may be allowed to point out that in my system of French the difficulty is met by a careful graduation of matter and a very gradual introduction of the various tenses. If second courses generally were drawn up on these lines, Mr. Dyson would probably have less reason to complain of their inadequacy.

R. H. PARDOE.

Handsworth Grammar School.

My thanks are due to Mr. Pardoe for the whole tenor of his remarks. It certainly is most helpful to hear the views of others, especially those actively engaged in the teaching of modern languages. Plain hard facts are always useful—far more so than volumes of vague theory. The extremists have always considered the *brilliant* boy, and in theory have considered him as working *under ideal conditions*. Some of us, however, maintain that experience proves that the oral method, sound as it is, cannot perform all that the extreme enthusiasts claim for it. That was my main contention.

I agree with Mr. Pardoe that second-year courses require "a careful graduation of matter and a very gradual introduction of the various tenses." Has he found such a course, especially such a course in German? But is not the real difficulty that the gap between the first and second courses is too wide? When the pictorial stage is passed the weak boys too often fall behind the class, while a backward form all too soon begins to wonder what it is all about.

I should welcome the views of other teachers as to the best way of taking a large class of backward boys of from fifteen to sixteen years of age on the direct method.

The High School, Nottingham.

TAYLOR DYSON.

## The School World.

A Monthly Magazine of Educational Work and Progress.

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# The School World

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OCTOBER, 1911.

SIXPENCE.

## EXAMINATIONS.<sup>1</sup>

By P. J. HARTOG, M.A., B.Sc.

**M**AY I preface my remarks by saying that I shall use the word examination as meaning "a systematic test of knowledge, and of either general capacity or fitness, carried out under the authority of some public body"?

For nearly half a century distinguished men and women in this country, including many members of the British Association, have been abusing examinations.

And yet in spite of this terrible curse,  
Nobody seems a penny the worse.

Nor, one may add, does anyone seem much the better either.

It would no doubt be rash to say that no improvements have been effected in our examination system in consequence of such criticism, yet I think it would be difficult to point to any movement, headed by such distinguished and able leaders, which has been so ineffectual as the movement against examinations.

The reason is not far to seek. The anti-examinationists, as we may call them, have, with few exceptions, failed to discriminate those cases in which examinations are useful and even necessary from those in which they are a partial or an unmitigated evil. I say, although, before an audience largely composed of teachers, it needs some courage to say it, that examinations may be useful and even necessary. It is quite clear that, whatever may be the opinion of teachers on the sacrifice of education to examination, "the public demands that persons on whose services it relies, but for whose failures it cannot be compensated, as by a business man who fails to fulfil his contract—that these should produce some certificate of competency based on an examination, and often on a series of examinations beginning in childhood, and prolonged into early manhood and beyond."

It is quite true that the public demand may be totally unreasonable. But is it? Is it not true

that some powers can be tested by examination, quite apart from teaching, and without the slightest harm done? I want to know whether a boy can add and multiply correctly. Can that not be tested by examination, and without evil results? I want to know if he can write legibly and read clearly and with intelligence. Can that not be tested by examination, and without evil results? I want to know if he can understand the non-technical part of a French or German newspaper (I say "non-technical" advisedly, to avoid captious objections). Can that not be tested by examination, and without evil results? Who would venture to dispense with public examinations in the case of medical men? If the case of Germany be referred to, I may remind you that no one in Germany can practise any of the recognised professions, such as medicine, law, or teaching, without having passed a State examination, which is quite distinct from the ordinary university examination for the doctorate.

I shall ask you, without going further into the matter, to assume that any movement for the total abolition of examinations is destined to fail in the future, as it has done in the past, and on that assumption to inquire if we cannot direct the anti-examination movement into more fruitful channels.

The criticism of examinations in the past has suffered from its vagueness. The first question to be asked in regard to any examination seems to me to be this: what is its precise object? Some bodies could no doubt give an absolutely satisfactory reply to such a question. I believe that the Institute of Actuaries, for instance, would be prepared to state that any person who passes its diploma examinations proves up to the hilt that he is capable of carrying on all the ordinary work that an actuary may be called on to do. I have no doubt that a number of kindred bodies could give a like assurance.

But in other cases—and in many other cases—I am clear that no similar reply would be forthcoming, and that the persons or bodies responsible for the conduct of examinations would be unable to define the object of those examinations with any approach to certainty or precision; they would be quite unable to say in words what any person who had passed the examination could

<sup>1</sup> A paper read before the Educational Science Section of the British Association at Portsmouth, September 1st, 1911. The present paper must be regarded as supplementary to the paper on "Examinations in their bearing on National Efficiency" read before the Society of Arts in February, 1911, and published, together with a speech by the Earl of Cromer, by Messrs. Hugh Rees, Ltd. (See also THE SCHOOL WORLD for March, 1911.)

certainly *do*. They would not even be able to say with confidence that he could pass the same examination in the following week.

Now is it not obvious that, unless we design our examinations with a given end in view, the result of those examinations is bound to be indeterminate, or even meaningless?

I suggest to you that it is unreasonable to examine, as we do examine, "in a subject," even when a syllabus is given, without defining—especially in elementary examinations—the object of the examination.

The question is, of course, not a simple one. In higher examinations leading to a profession, the whole curriculum and design are determined by the requirements of the profession concerned. I do not say that all professional examinations are perfect; but at any rate there is some guide to bring back the examination papers to reason, if, by the usual process of making one paper on the model of the last, with a slight difference on each occasion, they have become unreasonable in substance or standard. The examinations that seem to me most ineffectual at the present time are those which attempt to test "general knowledge" and "culture," whether at the school age or at the university age. I confess to some scepticism on the subject of "general knowledge" as tested by examinations. Let me take a specific subject—geography—and ask what general knowledge of geography a boy of sixteen ought to possess. Now I say unhesitatingly that that is a question which it is quite impossible to answer unless we have some idea of what his career is going to be. His knowledge of the facts might be such that he would fail at any examination of the ordinary kind, and yet if he had been properly taught he would be able by himself to learn all that he will require in his future calling or profession.

In dealing with geography, as with other subjects, we must remember the distinction, so often and so fatally forgotten, between the capacity-test which shows the power of *doing* something, a power likely to be retained permanently or for a considerable time, and the memory-test, which shows only the power of remembering something which may be forgotten next week.

If a boy can "read" a map, he will not easily lose that power; if he remembers where Cape Comorin is to-day he may forget it to-morrow.

Now the only topographical geography that a person needs to bear in his memory in a civilised country is such as in his own work or business he will require to have ready, without reference to books or maps. If he is going to be a teacher of geography, that means a good deal of knowledge of a wide area; if he is going to be a taxi-driver in London, that means much more detailed knowledge of a small area. It would be unpardonable in a geographer living, say, in Edinburgh not to know the position of Cape Comorin, but we should not think less of him if he were ignorant of the precise whereabouts of Newington Causeway or of the Portsmouth Hard.

It will be said that we do not know what career individual members of a given class in a given school will follow; whether, for instance, those on the benches of Dr. Welldon's ideal school will eventually be taxi-drivers or geographers, and therefore we *must* determine the syllabus of topographical geography which all should possess. My reply is that that syllabus should be reduced to a minimum, that it should be such as any average boy could acquire comfortably, say, in a year or two; but that he should be taught how to use geography books and maps himself. That last kind of knowledge can only be tested very partially by examinations, and I myself should leave it in the case of schoolboys and schoolgirls untested by public examination (except perhaps in regard to map-reading). What would be the result? Geography, some might say, would be totally neglected by the school authorities for the sake of subjects to which the examination test was applied. But in the first place I should take care that my geography teachers were keen students of geography, capable of interesting their class; in the second, I should give them a reasonable amount of time in the curriculum.

But what about the class? Will the pupils themselves not always neglect a non-examination subject for an examination subject? My reply would be: so much the worse for those who do. I would not sacrifice the education of those pupils who matter most, in order to attain a sham standard of knowledge from those who matter least. We speak glibly of the "sacrifice of education to examination." But if we go deeper into the matter shall we not find in many cases that the idol to which we really bow the knee is an illusory standard of average attainment of which the corresponding examination merely serves as an illusory test?

I am quite clear that many boys and girls who obtain 30 per cent. in history and literature examinations at the present day, and are reported to have "passed," have attainments as infinitely varied in quality as is consistent with the fact that the quantity of those attainments is in the neighbourhood of zero.

I said just now "so much the worse" for students or pupils who will not work at culture-subjects without the stimulus of an examination. May I amplify that statement a little in order to avoid misunderstanding? I do not mean that the lazy boy (and the term is meant to include the lazy girl) should be left to his own devices; but that no pupil should have forced on him by examination pressure a culture for which he is naturally unfitted. Indifference to such a subject as literature at the schoolboy age is far better than distaste for it.

In this connection we should bear in mind the fact that in every subject there is reached a limit for each individual pupil, beyond which the efforts both of himself and of his teacher—however conscientious, however enthusiastic—become useless, or at any rate unprofitable. In mathematics, of which everyone can learn the rudiments, we



know that such a limit is in many cases soon reached; and that relatively few pupils could learn to solve by themselves the easiest of differential equations. We recognise in another sphere that a man, after a time, cannot further reduce his handicap at golf. But this kind of limit is frequently not recognised in the study of culture-subjects, and the pupil and teacher may be blamed for a failure that is no fault of either of them. I believe that headmasters and headmistresses are fully—or at any rate fairly—alive to these facts. But the fond parent who wishes teachers to be kept up to the mark by examination tests may perhaps need educating in the matter.

I purposely took geography just now as an example, because I believe that geography can be examined in to a certain extent without evil effects on the pupils. But there are subjects in which I believe examination to be, I will not say fatal to training, but so injurious that the average attainment will be much less in a class, with a good teacher, tested by examination, than in the same class not so tested.

The distinction between subjects to which the ordinary examination tests are applicable with reason, and those to which they are not so applicable, is a broad and simple though profound one, and the distinction extends not only to examinations and to education, but to life as a whole. There are some things in life in regard to which there is a general agreement, some things that we must do as other people do them, no doubt better or worse, but still after a general model. Originality in adding, in multiplying, in grammatical usage, in the recognition of a familiar animal or a familiar disease, is, shall we say, undesirable. These are examples of the kind of processes that can be tested by examination, and that can be efficiently tested by examination.

You would not choose for your doctor a man who could not distinguish between a muscle and a nerve, or for a teacher of botany the person of whom it was said:

A primrose by the river's brim  
A rhododendron was to him.

Such processes are important processes. They are the bread-and-butter processes of life, and it is essential that everyone who is not an invalid or a parasite should possess some of them. But in those deeper things which concern more nearly the individual heart and mind, I suggest to you that examination has no part to play. You will not be able to prove by any of the ordinary examination methods that a candidate has the historic sense, the literary sense, the poetic sense, the moral sense, that he is sensitive and responsive in these regions of human feeling and thought. And I put it to you that it is one of the chief problems, and one of the most urgent problems of our day, to secure efficiency on the whole of the culture-side of our education without applying tests that tend to destroy the very sense that they are meant to stimulate. I have already indicated the solution partially. For these subjects, and

especially for history and literature, we must secure the most capable and enthusiastic teachers, and give them time and opportunity to do their work. And we must reduce examination requirements so as to ensure that only *part* of the average pupil's time is needed to satisfy those requirements.

Having reached the position that some subjects are suitable for test by examination, and some not, shall we not ask how examinations may be made as efficient as possible for their purpose? This question is one of national importance, and of an importance likely to increase rather than to diminish. It was recently reported in the Press that some four hundred Members of Parliament have petitioned the Prime Minister to inquire into the method of appointment to the Civil Service, with the obvious desire that all such appointments shall be awarded on the result of competitive examination, conducted by the Civil Service Commissioners. Our president yesterday, in his introductory address, stated very justly that "a facility for answering questions on paper is easily associated with grave defects of intellect and character. In proportion, then," he continued, "as favouritism ceases to be a public danger, examinations will lose something of their fatal authority." And he adds, "It is difficult to doubt that in the future candidates for public office will be required to pass a qualifying examination, but that the election will, at least in some degree, turn upon qualities which are not so easily tested by examination in writing."

I concur fully in our president's views of what is desirable; but if we wish his optimistic forecasts to be realised, must we not give the authorities some hint of the new kind of test that we wish to see imposed?

Having said at an earlier stage that examinations could not with certainty test individual qualities, may I refer to the possibility, nevertheless, of attempting to test by a written examination practical imagination, tact, and judgment?

I was asked not long ago to examine the Dartmouth cadets in English, and this is the problem I set them.

You are to write a letter in accordance with the following instructions:

You are to suppose yourself acting as governor of a colony in a tropical region which has recently been devastated by a hurricane. The seaport town which is the capital of the colony and in which you reside has been wrecked. The native population has been in a state of panic. The number of troops under your command is small. You have telegraphed for assistance to the nearest British warships, but this cannot reach you for some time. Meanwhile the admiral of a friendly Power who has been cruising in neighbouring waters has entered the harbour and has, with your consent, landed a party of bluejackets. The foreign bluejackets have behaved admirably and rendered great service. But the officer in charge of them is not very judicious, and you foresee that difficulties will arise with the natives owing to

questions of divided authority. You feel now able to master the situation, and have conveyed an informal hint to the foreign admiral that you do not need further help. He has taken no notice of the hint. You are now to address to him a firm but tactful letter, thanking him for his assistance and requesting him to withdraw his men.

The boys had between one and two hours to write out their letter.

Now I asked myself, before looking at the papers, what should I have done myself in similar circumstances; and I came to the conclusion that I should have asked the admiral and his chief officers to a farewell banquet.

Well, ladies and gentlemen, I speak from memory, but to the best of my recollection about a quarter of those boys hit on the same solution. Some hit on other solutions which seemed to me equally happy, and at least one or two of the letters would have done credit to a trained diplomatist.

I think you will agree with me that composition exercises of this kind certainly do test in a remarkable way qualities which are not otherwise easily tested by written examinations. But, *experto crede*, such exercises are not easy to devise, and while I think (as I have shown elsewhere) they may be used with certainty to test some intellectual powers not to be tested in any other way, yet I should be sorry to regard a test of this kind as an ultimate and final test of a man's character or individuality.

There is, again, a whole class of tests, invented by the experimental psychologists, which are themselves on trial, and may possibly in the future give us valuable insight into the mentality of different students. But those tests are still in their infancy. I hope that the infancy may ripen quickly.

The main plea that I want to put before you to-day is that while, on a conservative estimate, some 200,000 persons are examined in this country every year, and, say, 100,000 fail to satisfy their examiners, we still know very little about examinations; that with a huge amount of material to investigate, comparable to that accumulated by the meteorologist, we have been content to leave that material uninvestigated, and that the time for scientific inquiry has been reached. I have suggested previously, and I still think, that this inquiry should be carried out by a Royal Commission, with the aid of paid scientific and educational assessors, including one or more professional statisticians. But I believe that the British Association could materially assist by a preliminary survey of the field, and I suggest that this section should recommend the Council and General Committee to appoint a committee with the following reference:

To sketch out a plan of inquiry into the methods and efficiency for their purpose of public examinations, with special reference to the influences of such examinations on the previous education of the candidates, and specially to consider the following suggestions:

(a) That every examination ought to be regarded as a capacity-test, *i.e.*, that it should be so devised that one may be able to state clearly in words that a person who has passed it *can* do such or such a thing (*e.g.*, can write legibly, can read clearly and intelligently, can add and multiply correctly, can understand the non-technical portions of a French newspaper); (b) that certain further portions of the educational field should be as completely protected from the ordinary examination tests as those concerned with moral training already are so protected.

## THE INFLUENCE OF EXAMINATIONS UPON TEACHING.<sup>1</sup>

By T. PERCY NUNN, M.A., D.Sc.

NO argument is needed to prove that this influence exists—at any rate, in a negative form. There is probably no advocate of improved methods in any subject of the curriculum who has not been told by his professional audience that his suggestions are very interesting and instructive, and ought certainly to be adopted; but that, unfortunately, schoolmasters have no time to teach: they can only prepare their pupils for examinations. So widespread is this attitude that I feel a certain timidity in asking my colleagues to admit that examinations may, and frequently do, have a strong and beneficent positive influence upon teaching.

Speaking for myself, I confess freely that as a schoolmaster my teaching was often saved from greater ineffectiveness than it actually achieved entirely by the influence of good examination papers. In more than one subject I found it profitable to abandon the text-book exposition altogether and to accept as the basis of my instruction the inspiration of an examiner of exceptional ability. There is no reason why such a relation between examiner and teacher should not be normal. In practice an examiner can never confine himself to testing the knowledge and the capacity of the candidate. By the very fact that he must make a definite selection of questions he is bound to show that he regards certain topics as specially valuable either as knowledge or as exercises for capacity. This is why the "crammer" finds it worth while to make a careful study of idiosyncrasies of the various examiners against whom his pupils are to be pitted. Now if an examination is intended to be mainly or fundamentally a test of the candidates, it may be well to minimise this directive effect upon the teaching. The examiner must be wily, or he must be frequently changed. But in other cases the inevitable directive element may with great advantage to the schools be deliberately cultivated.

Take a man who is a fine and original teacher of his subject and has a critical and philosophic knowledge of it. Let him combine apostolic fervour with that clear vision of the actual which we call common sense. Let him have learnt by

<sup>1</sup> From a paper read before the Educational Science Section of the British Association at Portsmouth, September 1st, 1911.

wide experience not only how difficult the conditions of the teacher often are, but also what good work may be done when the conditions are least favourable. Place such a man in command of a department of a popular examination, and in a few years he may raise the level of instruction in his subject throughout the whole country. He can convey into every class-room something of the spirit of his own teaching. His authority will embolden the teacher to reject the antiquated lumber that clogs progress in all branches of instruction. With the directness of genius he will lead the teacher and his pupils straight to the ideas that are of real and permanent importance. Moreover, his questions will often indicate the most vivid, attractive, and fruitful ways of dealing with these topics. No writer on method, however eloquent, can hope to achieve by a volume the effect which an examiner can produce by a score or so of questions. Professors of education, lecturing in their class-rooms like "beautiful but ineffectual angels," may well regard with envious admiration the Pontiff whose Bulls are received with submission in a thousand schools.

I have spoken of the directive effect of examinations upon school teaching alone. I have done so, not because university teaching is excluded from discussion here, but because deliberate attempts to influence by examinations the course and form of university instruction are perhaps undesirable. On one hand university teachers are like Sovereign States. In theory all are equal, and one must not be asked to accept direction from another in matters of internal policy. On the other hand, it is generally the aim of a university teacher to guide his students to a knowledge of his subject as a self-contained logical whole, *teres atque rotundus*, freed as far as possible from the colour imparted by a personal point of view. It is arguable (I am not prepared to endorse the argument without qualification) that for both these reasons a university examination must be an examination "in the subject," one which deliberately avoids attempting to influence the instruction. It is necessarily, in fact, a test of the candidate pure and simple.

Neither of these arguments can be urged against the directive or normative use of school examinations. Not only are schoolmasters and schoolmistresses already compelled to accept advice on a rather large scale; where they think it is intelligent they eagerly seek it. Again, for the school teacher a logical, impersonal treatment of his subject is a *terminus ad quem* rather than an immediate aim of instruction. There is no more dangerous or persistent cause of ineffective teaching than the tendency to force the purely scientific or logical treatment of a subject upon the pupil before he is mature enough to receive it. The harmful effect of examinations upon teaching has been due, I believe, very largely indeed to their encouragement of this vicious tendency, especially in the young teacher fresh from his studies at the university. The only remedy is to

abandon the radically unscientific policy of examining boys and girls "in the subject" at a stage when their knowledge is inevitably in form and colour dependent upon the course of instruction which has moulded it.

The question how to utilise most effectively the normative influence of examination is one for careful inquiry by Mr. Hartog's commission rather than for discussion in a short paper. Nevertheless, I propose to consider the problem very briefly, if only to show that certain apparently grave objections are not insuperable.

The first and most obvious objection is that if we encourage a person who sets papers in one of our great local examinations to make full use of his powers of influencing teaching, we shall set up a despotism which, however well intended, will in effect be deplorable. Better that teachers should be free than that they should have the finest pedagogy forced upon them *ab extra*. Better an examination that represents nobody's views and can inspire nobody than one which tends to cramp initiative and to reduce all teaching to one pattern.

Secondly, it will be said that when to our Amurath an Amurath succeeds who has different views on the teaching of the same subject, a state of confusion will be caused intolerable to contemplate.

Thirdly, the argument that a school examination should not be "in the subject," but should be based upon the characteristics of the instruction actually given, seems to lead to the conclusion that each teacher should be his own examiner rather than to the doctrine that a "super-teacher" should conduct the examination of all schools.

To these objections, taken together, I reply as follows:

(1) According to universal complaint, the present system of examinations is as successful in obstructing initiative as any system could be. My accomplished tyrant would at least give enthusiasm and definite pedagogical inspiration to teachers of kindred intellectual temperament. The examination "in the subject" tends either (as we have seen) to direct the teacher towards the wrong goal, or else to prevent him from developing *any* consistent treatment of his subject. He has no time, he says, to teach: he can only prepare for the examination.

(2) In the second place, it must be remembered that real individuality is as rare among teachers as among poets, painters, and musicians. The most that can be expected of the majority of us is that we should reproduce the methods of the master craftsmen, showing by characteristic modifications here and there that we have assimilated and not merely swallowed them. Moreover, even if we belong to the gifted few who can do more than this, and can enrich their profession by genuinely original modes of practice, the expansion of our genius will be helped, not hindered, by the study of existing models. The history of men of marked artistic individuality, such as Keats or

Robert Louis Stevenson, demonstrates that close imitation is a necessary first stage in the development of spontaneity. No matter how brilliant the promise of a young teacher may be, it is an excellent thing that he should be compelled to form himself upon the pedagogical personality of an older teacher, if only as a necessary stage in the discovery of his own.

(3) So far I have argued that an examination conducted by a single expert who used it as a means of propagating his views on the teaching of his subject would be no more restrictive than the present examinations, and would do much more positive good. But I do not wish to maintain that it would be advisable to give the command of the examination to a single expert, however eminent. The use of an examination to develop pedagogical individuality implies that the examination must take different forms to suit the needs of different schools and the mental outfit of different teachers. So far am I from desiring to minimise the importance of this implication that the main purpose of my paper is to emphasise it. For it has an immediate bearing not only upon the education of younger teachers, but also upon another problem in which a teacher of pedagogy must be equally interested—the problem of investigating and disseminating improved methods of instruction.

There is in the present educational situation no feature more satisfactory than the keen interest taken by teachers in questions of method. This interest is certainly not less healthy because it shows itself here and there in acute controversy between different schools of thought. What should be the relation of a public examination to these differences of professional opinion? To ignore them and to examine "in the subject" is an alternative which we have already rejected. That the examiner should take up a central position between the two opposing wings is scarcely less unsatisfactory. He is unlikely to produce much positive good, and he will in a very real way hamper the teachers whose special activities are most worth encouraging. There seems to be only one kind of way of meeting at once all the necessary conditions—of securing, that is, that public examinations shall be used as a means of positive pedagogical inspiration and guidance; that they shall be varied enough to suit the needs of different types of teachers and schools; that they shall not hamper the development of teachers of special ability; and that they shall, on the contrary, play a definite part in aiding pedagogical progress in all its branches. The solution of this complicated problem takes in my own mind the following concrete form. No doubt many other variants are possible.

In the first place, the schools of the country should be mapped out into provinces of manageable size. The non-local "public" schools would naturally fall to Oxford and Cambridge. The local schools should be brought into close intellectual relations with the universities which will no doubt appear ere long wherever there are large

communities with characteristic occupations to form the basis of characteristic intellectual life. The beginnings of such relations already exist where schools are inspected and examined by a local university, as, for example, many schools are inspected and examined by the University of London. I look forward to a time when the university Department of Education will play an important part in making these relations closer and more vital. Its position as part of the academic organisation on one hand, on the other its close connection with the life of the local schools through its work in the training of teachers and its management of demonstration and experimental schools, will eventually give it the highest qualifications for the part I assign to it. It should become, as it were, the centre of the pedagogical consciousness of the schools within the university's area.

Given the conditions which I postulate, the university would be in a position to make its examinations of much greater use to the schools than they are at present. For example, the varying needs of schools of differing types—now only imperfectly met by the system of optional subjects—could be satisfied by examinations designed to correspond to, and to aid in developing, the form and individuality of each type. I take it as axiomatic that the teachers would collaborate with the university in determining the syllabuses of these examinations. But, in addition to this general collaboration, teachers of special ability should play a specific part in the evolution of the examinations. A teacher who is recognised by the university's inspectors to be developing work of notable originality and value in any subject should, on the application of his school, be added to the panel of examiners in that subject, and should be permitted to determine the general character of the papers set to his own pupils. Those papers subsequently published would come into the hands of his colleagues throughout the university area. With the approval of the inspector conversant with the conditions in each case, other schools should be permitted to present their pupils for this special instead of the general examination.

In this way a small number of examinations would become defined, sufficiently varied in type to meet all practical needs, sufficiently stable to give the average teacher constant and authoritative guidance. They would be genuine expressions of the best educational activities of the province, and would therefore be well suited to foster its general educational life. Moreover, the plan would guarantee continuous adjustment of the examination to the progress of the schools. For the special examination representing the growing-point of professional practice to-day would become or would merge into one of the alternative general examinations of to-morrow.

Finally, the plan would be a powerful stimulus to cautious and intelligent experimenting in curriculum and method, and would add immensely to the confidence with which the results of such ex-

periments would be received by the profession at large.

I believe that these speculations outline a development of our examination system both practicable and, in principle, necessary if examinations are to have their full value as instruments of educational progress. But they contemplate a future so remote that it would be unprofitable to pursue them in further detail. It will be sufficient if I have justified the thesis that in the directive influence of examinations we have an educational asset potentially so valuable that any commission of inquiry into the whole subject will do well to give this department of it most careful attention.

### THE PLACE OF EXAMINATIONS IN EDUCATION.<sup>1</sup>

By SARA A. BURSTALL, M.A.

Past President of the Headmistresses' Association.

**I**N dealing with this most important subject any one speaker can but treat of one part.

As representative of the Association of Headmistresses and a past president, the present writer feels bound to bring forward its views, which are the result of careful consideration and joint action during the last four years. This subject has, indeed, been of late the main work of the association. Its members feel strongly that the English system of external examinations of schools is now no longer required, is doing harm to girls' education, and, in some cases, to the future powers of the girls themselves. There is danger of physical injury and intellectual exhaustion, more especially in the case of those who have to compete for college scholarships.

The association has had a subcommittee at work, first to study examination systems in other countries, and then to elaborate possible reforms. At this year's conference in Wakefield, examinations were the main subject, and a series of resolutions, very carefully drafted, was passed. It is the hope of the association that these will be accepted by public opinion, and will serve as a basis for further reform.

Two lines of advance have already shown themselves clearly. External examinations for young girls are quite unnecessary under modern conditions, with qualified teachers and formal inspection of schools. They serve no purpose, and throw an unnecessary strain upon girls during the period of growth and adolescence. They involve an injurious interference with the curriculum and the freedom of the teacher, and in a properly organised school the stimulus they afford is no longer required. Thus the 1911 conference reaffirmed what the headmistresses had stated in 1909:

That this conference disapproves of external examinations for girls under sixteen years of age, and invites all members of the association to co-operate in discouraging pupils from entering for them.

The association feels indeed that for universities

like Oxford and Cambridge to examine mere children of twelve and thirteen as they do in their preliminary examination is an act unworthy of their great place in our national life.

The second line of reform developed from the fact that the system of external examination of schools, evolved here since the middle of the nineteenth century, is peculiar to this country. Everywhere else, even in France, teachers are associated with the work of school examination. We consider that one of the gravest faults of the existing system is the complete separation of the examination from the school. We are aware, of course, that this arose from the needs of the schools in the mid-Victorian era, when inspection was, as yet, impossible, when there was no organised profession of teaching, and when, as the report of the Taunton Commission showed in 1867, the standard in many of the schools was deplorably low. But we have moved a long way since then. The conditions of secondary education have changed, and the external examination system, which was then the only possible stimulus and help which could be accepted by all parties, is now an intolerable bondage. Our schools are too often examined by persons at a distance who know nothing of the local difficulties and needs, who are not themselves teachers, or, even if they have had some experience, are now out of touch with existing problems and with new movements in the schools.

The German system is entirely different. There the actual teachers in a particular school examine their own pupils under the control of a Government inspector who has been himself a teacher of the same kind. We are not nearly ready for this system in England yet. The teaching profession needs to be much stronger, and the standing of the assistant-master must be more fully that which it is in Germany. But something can be done, and is actually being done at this moment. Acting teachers can take part in the *administrative* work of examining boards. The newest of such bodies, the Joint Matriculation Board of the Northern Universities, has evolved a system applicable to modern conditions. Each of the constituent universities, Manchester, Liverpool, Leeds, and Sheffield, nominates for a four years' period of service an acting teacher from some one of the schools in its area, as a full member of the Board. These four, who for some years past have included women as well as men, take a complete share in every detail of the work. They are present at every meeting and serve on most of the subcommittees. They are always, of course, in a minority, but their opinion can be asked at any moment for any detail, and their very presence implies that the needs of the schools are constantly kept in view. The writer, who served for four years on the Board, cannot speak too strongly of the practical value and success of this system. It has led, *e.g.*, to a combination of examination and inspection, a tentative use of the school record, and to the establishment of a new housecraft certificate to meet the needs of the new housewifery departments in girls' schools. The

<sup>1</sup> A paper read before the Educational Science Section of the British Association at Portsmouth, September 1st, 1911.

Headmistresses' Association has adopted as one of its principles of reform this co-operation of acting teachers, and has approached examining boards elsewhere to advocate the adoption of the system.

As to the school record, which is recognised to some extent in the school examination of the University of London, it is felt that some help may be found by further use of it: it fails us, however, at one of our greatest points of difficulty, the pressure of competitive examinations for college scholarships. This is peculiarly severe in the case of girls, since the number of scholarships at the women's colleges at Oxford and Cambridge is lamentably small, and girls from schools all over the country and women graduates of other universities compete. The result has been a forcing up of the standard, and an over-pressure which tends to exhaust and injure the future powers of our ablest girls. The Headmistresses' Conference of 1911 carried unanimously the following resolution:

That this conference regrets the increasing difficulty of university scholarship examinations for girls, and asks the principals of colleges for women at the universities to give the matter their serious attention with a view to lessening the strain of preparation and in examination.

We earnestly hope that from this meeting, and from the longer and wider experience of the men's colleges and schools, some way of escape may be found from what is to us at present an *impasse*.

As regards matriculation examinations, the whole subject is very much easier, since the school record can be used; competition between different schools does not arise, but the only question is as to whether a pupil is fit to proceed to college, or to enter on a course of professional study. The ideal plan would probably be something like the American accrediting system, developed and applied in harmony with English conditions; but we are not ready for that yet, any more than for the German system of school examination. This system means that a recognised school accredits a pupil who has gone through the course of study with satisfaction to the teachers as ready to profit by a college course. It was developed in the western States as a link between the State high school and the State university: it is not without its difficulties in America. We shall not have it in England in this generation, but it may come, and should be an ideal towards which we may work. Its elements we possess already, viz., recognised schools of public standing working under a far more rigid and thorough inspection than any that exists in the United States. Those of us who know what a full inspection by the Board of Education is, and how real is the control and supervision exercised by the Board from term to term, cannot but feel that this is sufficient public guarantee of the efficiency of such schools. We need further an organised profession of teaching, that Teachers' Register which recent events have brought nearer to us, and we need what is also becoming more a reality, the passage of pupils through a regular course of study year after year,

for four, five, or six years, even if we cannot yet achieve the nine years' course of the German higher secondary schools. The resolutions passed by the headmistresses in 1911 imply the existence of these conditions:

That in matriculation examinations credit should be given for the school record in compulsory subjects in the case of pupils who have passed through a complete course of studies for not less than four years in a school (a) inspected by the Board of Education, and (b) periodically examined by a university board of examiners, (c) on whose staff there is a certain proportion of registered teachers.

Meanwhile we recognise that in England external examinations will go on for various purposes for years yet, and we desire to make them as harmless as possible. Thus the following resolution was passed:

That this conference urges that it is of the greatest importance to the best type of general education that (1) the co-operation of acting teachers should be recognised and allowed in all school and matriculation examinations; (2) schools should be allowed and invited to present their own syllabuses for school examinations; (3) that in the testing of science teaching inspection should be more prominent than examination, and that the note-books covering a definite and consecutive course of work of the candidates should be taken into consideration in the awards of examinations.

The co-operation of acting teachers is a phrase of general import. It may mean much, it may mean little, according to what is found possible in particular localities. It should always include the making of regulations and the drafting of syllabuses: it may also include the choice of examiners, revision of questions, and even the setting and correction of papers, always, be it understood, along with other persons who are not acting teachers. Co-operation, not control, is the association's idea. We teachers value the close relation of the universities which has been developed in England, which is marked in Sir Robert Morant's new scheme for a Teachers' Council by the provision of the eleven university members. The universities must, however, have the co-operation of those who are actually engaged in teaching if they are to examine the schools properly.

That the schools should present their own syllabuses is a principle already recognised in more than one place; the only objection is its cost, since separate papers are required; but the larger and wealthier schools should be ready to bear this cost, while the smaller schools, especially in remote country places, will find formal syllabuses help them and will probably not need to present their own.

Lastly, it must be remembered that certain subjects cannot well be examined at all by ordinary papers. Science is perhaps the most obvious of these. The cost of practical examinations is a very real difficulty, and the plan of certified note-books is suggested as a way out. English literature is probably as unsuitable as science for testing by ordinary paper work. Here the school record might very well come in, and the only test

be an essay, provided the school could show that the pupils have for years followed satisfactorily an approved course.

The Headmistresses' Association has not advocated the wide use of oral examinations, since its members are well aware of the practical difficulties, both financial and personal, which the *viva voce* examination presents. However, as used for the selection of free-place scholars at about twelve years of age, whether by individual heads of schools examining their own candidates, or by public officials, as in the West Riding of Yorkshire, the plan is found to work very well, and the problem of cost does not arise. Oral examination of elder pupils is much more difficult and much less satisfactory. It is possible, however, that for the award of scholarships at college much more might be done by college authorities, if they would set their minds to it, and study the French methods so well described in Mr. Cloudesley Brereton's recent article in the Board of Education's Special Reports.<sup>1</sup>

In conclusion the writer would urge that attention be focussed on the question of possible reforms. There is serious dissatisfaction with the existing examination system on the part of parents, teachers of various types, and the public generally. What we want is a platform, a policy, and it is in the hope of providing some material for such a policy that the writer has here brought forward the resolutions of her association.

### THE PLACE OF EXAMINATIONS IN THE PRIMARY SCHOOL.<sup>1</sup>

By WALTER D. BENTLIFF,

Vice-president of the National Union of Teachers.

THE very fact that "The Place of Examinations in Education" is a subject of discussion at a meeting of the Educational Science Section of the British Association is in itself indicative of some uneasiness in the world of education as to whether examinations are a help or a hindrance to the teacher in his work as an educationist. There are examinations and examinations; and while some are necessary and helpful, others are not only unnecessary but an actual hindrance to the work of education. In the education of a child, as in the erection of a stately fabric, the foundations must be well and truly laid, and each superimposed course must also be thoroughly constructed and made sound before the next is added. In this way only can strength, beauty, and endurance be secured by the builder, and in this way only can the teacher hope to secure the final success of his teaching. What is the process? So far as we are concerned as educationists, the fitness of the pupil for a "superimposed course," for a step forward, must be tested by examining him, if you will so name it—I prefer the word "testing"—on the work already covered by the teaching. This is a necessary, helpful, and inseparable part of the

teacher's work. Speaking as a primary-school teacher, I would ask what is the rapid questioning which forms the concluding feature of a good oral lesson but an examination?—an examination hot-foot, if you like, but an examination notwithstanding. To transfer this work from the teacher to the pupil, what is the working of examples which follows the teaching of a process in arithmetic but an examination?—self-examination, if you will, but an examination. And the same may be said of other subjects in the curriculum of the primary school. Hot-foot examination of the pupil by himself or by his teacher is essential to good teaching, and in education it has a place in every good lesson.

Not only, however, is it necessary to test each course as child-building proceeds; it is necessary periodically to test the stability of the education structure from the foundation, and to do this an examination covering a large amount of past work must be undertaken. The teacher alone knows what has been the end in view, what have been the various processes leading up to that end; and therefore the teacher alone can so examine the pupil as to satisfy himself that his object has been attained. The place of this examination in education is in the teacher's scheme of work and in the hands of the teacher himself. Given a born teacher perfectly equipped for his work, I am quite convinced that so far as it is desirable for the education of a pupil to be entrusted to one teacher only, there is no place for any other examination. It is generally conceded, however, that in education a child gains by coming under the influence of many minds even as a student of the same subject, and in the primary schools where specialisation is not so common as in schools of another type the change of teacher is generally effected by the child's promotion from class to class. This arrangement makes it necessary that the head teacher, who is responsible for the aim and object of the school work as a whole, should determine the fitness of the pupil to pass from one class to another. Hence an examination by one who is not the actual teacher becomes necessary. This, however, is not examination by an outsider, for the head teacher, although not the actual builder, is the architect of the finished building, the man or woman responsible for the full impress of the school. This examination—the term examination—has also a place in education, and its place is in the plan of the work and in the hands of the master or mistress of the school.

Let me for a moment compare my estimate of the place of examinations in education so far as primary schools are concerned with the actual facts of what is happily the past. Until recently the examination was conducted neither by the teacher-builder nor the teacher-architect; it was conducted by the onlooker, and therefore formed no part of the education of the child. It was an examination for the purpose of awarding public money. Each subject of instruction was valued at a fixed price for a fixed attainment, and the examiner was the

<sup>1</sup> See THE SCHOOL WORLD, July, 1911, p. 256.

<sup>2</sup> A paper read before the Educational Science Section of the British Association at Portsmouth, September 1st, 1911.



public valuer of the information crammed into the cranium of the individual pupil. It became necessary to the continuity of a teacher's tenure of office that every one of his pupils should toe the same line standard by standard at the same time. This was not education, and yet it was devised by men of liberal education and worked by men who had themselves been trained in the public schools and the older universities.

Primary schools were money-earning factories for so long that education is still suffering from the after-effects of the vicious system—a system which might still have paralysed the teacher's efforts had not the National Union of Teachers led the van of opposition to it, an opposition which finally resulted in the substitution of public inspection for individual examination by an outsider. Examination by those not responsible for the actual plans and teaching hampers the teacher by necessarily tempting him to bend his efforts to satisfy the examiner, and to that extent prevents concentration on what *he* deems actually necessary to the education of the child. In other words, the teacher's personality, his aims and his ideals, are overshadowed by those of another, and these, however excellent and desirable if pursued by the owner, fail as factors in educating if pursued by another. Therefore outside examinations have no place in education as education, though they may have a place in its machinery—a place which I will endeavour to indicate.

Teachers as a body are neither better nor worse in point of character and equipment than any other body of professional men and women, and on this fact depends the occasional, the very occasional, necessity for the individual examination of the pupils by an outside examiner. Where there is reason—and it must be grave reason—to suspect that a master or mistress is either unable or unwilling to perform his or her duties efficiently and well, it becomes necessary in the sacred cause of the education of the child to convert that suspicion into fact or remove it. This can only be done by a thorough and systematic examination of the teacher's pupils. The examination of a school by an outsider has, therefore, a place in education, a place to *secure* education, and should be used whenever and wherever there are really grave reasons to doubt the educational health of any particular school. Such an examination does not advance or carry on the education of the child; it retards it. But in doing so it should secure the conditions for future advance.

It is of the utmost importance, therefore, that those who inspect the schools and in whose hands lies the power of imposing these examinations should be experts in education, men and women of wide experience, and men and women capable of forming correct opinions by inspection and the weighing up of that evidence which is open and apparent to every expert who spends his life in the schools. Unfortunately for the primary school, its inspection is too frequently in the hands of inexperience, and as a consequence the healthy may be doctored and disease go undetected.

Many interested laymen are apt to doubt the healthy condition of the schools because of inability to recognise the symptoms of their health. The honest persistence of such men as members of education authorities to have *their* doubts removed is a frequent source of danger to primary education, inasmuch as in many cases the last resort of the experienced expert—individual examination by an outsider—is inflicted on the schools of a whole district as a regular part of local procedure. Fortunately these cases are the exception rather than the rule, and while I am glad to say the place of examinations in the primary schools is better realised to-day than in the past, I am confident that it will never be fully realised until the primary school is assigned its real place in a national system of education, and the primary-school teacher is no longer regarded by those in authority as one who has not the "antecedents usually looked for" in those who inspect him.

There remains the question of examinations to secure the hall-mark of attainments, and examinations to test fitness for appointments. These, however, are generally outside the work of a primary school, and concerning them I therefore say nothing except this, that should any attempt be made to establish an examination for children of a given age, an examination to be accepted generally as a recognised qualification for the various openings in life, children who have been trained in the primary schools must be allowed access to such examinations equally with children trained elsewhere, for I strongly contend that, whatever else may be the place of examination in education, its place is certainly not to accentuate the present deplorable social class distinctions which are the real obstacles to a truly national system of education.

### SCHOOL BOOKS AND EYESIGHT.<sup>1</sup>

By G. F. DANIELL, B.Sc.

THE need for care of the eyesight of school children is well known to my present audience. Anyone wishing to realise the extent of defective vision among school children would do well to read the report to the London County Council by the medical officer, Dr. Kerr. Personally, I believe that the report understates the evil; but the evidence published is enough, and more than enough, to call for most earnest consideration. I ask your attention for a few minutes to one part of the problem, namely, the influence of school books, especially their influence upon myopia, or short-sight.

Prof. Priestley Smith, in an address delivered to the Ophthalmological Section of the British Medical Association in 1890, stated that myopia is a disease which can be, not indeed entirely eliminated, but greatly diminished in incidence and severity by exercise of proper precautions. "*The question is chiefly one of school hygiene.*"

I am not an ophthalmologist, but the following

<sup>1</sup> A paper read before the Educational Science Section of the British Association at Portsmouth, September 5th, 1911.

seems a fair summary of opinions gleaned from several fairly authoritative sources :

Much short-sight is caused by the misuse of eyes during the period of growth. Careful observations in particular localities have shown that for these localities, during the periods investigated, short-sight (1) is rare before the age of six; (2) increases in amount and degree in the higher classes or standards of schools, and is the only disease of which the incidence is higher among the older than the younger scholars; (3) increases with the number of hours employed in literary work; (4) is worse in badly lighted than in well-lighted schools.

Recognising that short-sight is to such an extent the result of faulty education, several authorities have laid down rules to be observed in the production of books to be used by children under twelve years of age. Thus I find the following : school books should have sufficient thickness of paper, and large, thick-faced, well-defined type. Letters and lines should be well spaced, with good margins to the pages. Ink should be black, and paper white or tinted yellow. Unbleached paper of a tawny-grey tint has been recommended. Glazed paper is strongly condemned.

The lines of the school book should not exceed 4 inches (some say  $3\frac{1}{2}$  inches) in length. No type should be allowed which necessitates holding the book at a less distance than 12 inches. Types recommended are "double-pica" for very young children, "pica leaded" for children of age six to eleven, and "small pica leaded" for the other children. Small-type annotations are undesirable. Not more than two lines of type should be included within a vertical distance of 1 cm. (The height of small-pica letters is 1.75 mm., and of pica is 2 mm.)

I have recently tested various books exhibited by publishers at educational conferences, and have found that the above rules are not consistently observed. The matter is of sufficient importance to call for action by education authorities, either central or local. Now that the organisation of educational administration has proceeded so far, and especially in view of the responsibilities undertaken by education authorities as regards medical inspection, it appears desirable that Section L of the British Association should investigate the question of the relation of school books to eyesight. It should not be forgotten by either local authorities or teachers that the short-sighted lose much unconscious education. It is hoped that a British Association report may formulate a standard to which all school books should conform; at least, all books intended for use by children under twelve. Education authorities might exclude from their requisition lists (after an appointed date, of which notice would be given to the publishers) all books which did not satisfy the standard requirements. The production of books which are likely to cause injury would cease thenceforward. Thereby much preventable injury to eyesight would be prevented.

## OXFORD LOCAL EXAMINATION, JULY, 1911.

### HINTS FROM THE EXAMINERS' REPORTS.

**SENIOR.**—In *Arithmetic* the examiners point out that sums arithmetically accurate failed in many cases to secure full marks because the answer was not expressed in the terms prescribed. A question dealing with the pressure of water on the bottom of a tank abounded in errors, which may be illustrated as follows : A cubic foot of water weighs  $10^3$  ounces; therefore a square foot weighs  $10^2$  ounces, and a linear foot weighs 10 ounces. In finding the perimeter of a square the area of which was given in acres, the side was often found in "linear acres" by taking the square root directly.

A fruitful source of error arose from carelessness in dealing with percentages; e.g., the net price after allowing  $2\frac{1}{2}$  per cent. discount =  $\frac{100}{102\frac{1}{2}}$  of the gross price; sale price with 50 per cent. gain on outlay =  $\frac{100}{50}$  of outlay, &c. The want of precision and accuracy, to which attention has been directed in previous reports, is again noticeable in the reckless and incorrect quotation of tables.

Reporting on the *Ancient History* papers the examiners state that the main faults were (1) inability to support an argument with examples, (2) a great haziness about dates even in some of the best papers, and (3) a tendency to dwell on the purely legendary episodes. There was also too much learning by heart and too little individual reasoning.

In *English History*, 55 B.C.—1135 A.D., many marks were lost for want of attention to the wording of the questions; e.g., instead of showing what was *gained* or *lost* by the connection of Normandy with England, candidates gave a string of facts, without discriminating between good and bad. There were also too many tabulated answers.

In *English History*, 1042—1485, despite repeated warnings, it is still necessary to emphasise the widespread failure to read the question with sufficient care: this failure is largely responsible for (i) irrelevant matter, (ii) the attempting of *all* amongst *alternative* questions, and (iii) the omission by oversight of parts of questions otherwise satisfactorily answered. The most salient defect in the work of even the more intelligent candidates is the inability to illustrate and support general statements by apposite particular facts.

The examiners of the answers on *English History*, 1399—1603, would like to direct attention both to meagreness of style and to mistakes in spelling of a character hardly to be expected from Senior candidates. This looks as though knowledge had been gained orally rather than directly from textbooks. In very many papers there is great confusion about dates, even to the century in which the various sovereigns reigned. Again, geography is very weak. Many candidates seriously jeopardise their chances by failing to read the

questions set, and pages of irrelevant matter are produced to which no marks can be assigned.

In *English History*, 1603-1763, all candidates exhibited great inaccuracy with regard to dates, and an extraordinary ignorance of periods of time. Thus the term "Middle Ages" was taken by several to mean any time between the Norman Conquest and the Battle of Waterloo. Once again the examiners feel obliged to point out that all candidates should be warned (1) that general statements need facts to support them; (2) that each question should be read carefully and its meaning considered before anything is written.

The weak point in *English History*, 1763-1880, is the reluctance or inability to deal adequately with questions which demand any reasoning powers. Such questions were almost always answered by a string of more or less relevant facts. This tendency was specially noticeable in answers to the question which asked candidates to estimate England's gain or loss from various events.

*English Grammar* has been fairly well done, but the proportion of very good answers is perhaps less than usual. In the analysis there was a widespread confusion as to the meaning of the word "sentence," the majority of candidates not realising that a finite verb is necessary, but apart from this the answers were good. The questions dealing with the derivations and meanings of words or phrases were, as a rule, not very well done. The question on the natural order of words revealed a want of originality, and that on the introduction of foreign words into English, though generally fairly well done, was often marred by lack of proportion and of knowledge of history.

*Tennyson*.—There are three points to which the attention of teachers and candidates might be directed:

(i) In the answer to the question on contexts many candidates do little more than repeat the question without giving any real explanation.

(ii) The quotations which are given, though correct in themselves, are in many cases not relevant to the subject-matter of the answer in which they occur.

(iii) Candidates frequently begin to write their answers without grasping the scope of the question.

*Milton*.—On the whole, the text of the poems was well known; although there was much confusion in the explanation of classical and other allusions. In the questions requiring thought, there was a tendency to verbosity and irrelevance, the point of the question being in many cases entirely missed. More attention should be paid to the separate parts of questions: the proportion between the parts was often quite ignored. The spelling was occasionally faulty.

*Wordsworth*.—The critical questions proved too hard for many: it would be well if all beginners in criticism were taught that a few lines from the author are often worth more than many pages of description as to his views. The writing and

spelling were, on the whole, satisfactory. The general level was distinctly good.

*Addison*.—The great fault of nearly all the papers is the utter absence shown of any sense of style; the grammar is often extremely faulty, and there is a tendency to repeat the same thing over and over again in slightly different words.

The general impressions conveyed by the papers in *Geography* in this subject suggest the following conclusions, viz.:

(1) That an increasing, though still relatively small, number of schools enter candidates who have been carefully, intelligently, and adequately prepared for the examination. Many of the exercises sent in by these candidates are extremely creditable.

(2) That the number of candidates of real merit is extraordinarily small. This may probably be taken as an indication of position commonly awarded to geography as a school subject.

(3) That a quite undue proportion of the candidates have been inadequately prepared for the examination.

(4) That (with a few exceptions) the knowledge of topography and regional geography, more especially as displayed by the answers to the map question, is very deficient. There seems to be a tendency for candidates to abandon the study of maps at an earlier stage, and to deal exclusively with text-books in preparing for this examination.

(5) That there is little sign of improvement in the matter of irrelevant and diffuse answers, or of the consideration of the questions actually proposed.

(6) That, having regard to the amount of special knowledge commonly acquired, the candidates are quite insufficiently equipped with the means of expression. English composition and spelling were not satisfactory, and many candidates were quite unable to frame answers which (as it appeared) would fairly convey the knowledge they seemed to possess.

The translation from English into *French* was, on the whole, disappointing. The exercises of most candidates showed great carelessness and lack of concentration, and indicated the need of far more practice in writing French. The free composition gave very similar results. Only a small proportion of the candidates showed any readiness in handling the language: the majority of the exercises were infantile in thought, and marred by numerous trivial errors. Answers to the grammar questions involving the composition or translation of sentences suffered from the same fault, but the easier questions were often well done.

In the second paper, where mistakes were made in construing the French, they were generally due to careless ignoring of simple constructions, or to undue influence of sound or appearance in words.

The more serious defect was in the choice of English, which either was completely out of control or so meagre as to be mere literal transcription.

The practice of offering alternative renderings for a word or passage was very prevalent, to the disadvantage of the candidates.

*Algebra.*—The work as a whole was not of a very good standard, but was as a rule reasonably well set out, and the easiest questions were quite satisfactorily done.

The question on fractions produced much unsatisfactory work, the error of cancelling terms of numerator and denominator as though they were factors being very common. Perfect solutions of the simultaneous quadratic were exceedingly rare, and even incomplete solutions were infrequent.

Very many candidates interpreted "increasing  $x$  by a quantity  $a$ " as "multiplying  $x$  by  $a$ ."

Though many could give the arithmetic, geometric, and harmonic means between two quantities, few were able to make the desired deduction. The functional notation is still by no means generally known. The question on graphs was very badly done, mainly through an entire lack of judgment in selecting units. The great majority of graphs were drawn to so small a scale as to be quite useless for the purposes for which they were intended, and many candidates still neglect to show their units at all.

*Geometry.*—The practical work was fairly accurate, but some of the constructions (e.g., tangents to a circle) were frequently done by eye instead of by means of instruments. The proofs and explanations of the constructions were often quite unintelligible.

The general standard of the theoretical work was poor. The definition of a rhombus usually contained in addition some or all of the properties of the figure. The diagram given to illustrate theorems and propositions were often drawn without a word of explanation, and, when reasons for statements were asked for, the answers were almost always quite insufficient. It was obvious that many of the candidates had quite a fair knowledge of geometrical ideas, but had no notion of what really constituted a proof. It is essential that pupils should be taught not only how to write out their work in a logical and readable manner, but also to avoid putting down statements for which, even if true, there is no possible qualification from the terms of the question. For example, it was almost invariably assumed at the outset that two chords of a circle which intersect at right angles must pass through the centre.

*Mechanics and Hydrostatics.*—The results of this paper were somewhat disappointing, a considerable number of the candidates having practically no knowledge of the subject. There was a regrettable tendency of many of these to cloak their ignorance by giving long accounts of phenomena unconnected with the questions. It was found that candidates who made use of everyday occurrences to illustrate various points in the question usually did well. Pupils should be encouraged to apply the principles of mechanics to explain common phenomena.

*Heat, B Paper.*—Most of the candidates were unable to give a correct account of the practical

precautions to be observed in using a weight thermometer to find the apparent coefficient of expansion of a liquid.

*Electricity, A Paper.*—The general standard was low. In a considerable number of cases the answers were not to the point, and the impression given was that candidates, having answered all the questions that they could, devoted the rest of the time to "making shots" at the remaining questions. There is also the common error of stating a law or effect when the candidate is asked to describe an *experiment illustrating the law or effect*.

*Electricity, B Paper.*—Many of the candidates had not realised the distinction between *describing* and *defining*. Thus "specific inductive capacity" was described in vague and general terms instead of being defined precisely. It should be remembered that physics is an exact science, and that all definitions should be given quantitatively. Another frequently occurring mistake was the confusion between accumulators and condensers.

*Physical Geography.*—The standard attained in this paper was not high. Few candidates knew (a) how to determine the visibility of one point on a contoured map from another; (b) how to find the duration of twilight; (c) about the difference in density of water containing varying quantities of salt.

Some candidates described accurately methods of finding latitudes and longitudes, but were quite unable to apply them to the numbers given.

*JUNIOR.—Arithmetic.*—A very large proportion of the candidates were found to have a most imperfect knowledge of the metric system; some even think that a litre is a unit of length; a smaller, but still large, number were unable to perform accurately simple numerical calculations, such as occur in the simplification of a complex fraction, or in the working of questions on practice and proportion. The answers to the question on profit and loss, and to a less extent that on interest, often led to large masses of confused and complicated work which were quite unnecessary.

*English History, 1066–1485.*—More attention should be paid to a correct knowledge of exact dates. There is a distinct tendency to give facts without assigning reasons for them, or to state facts *only* when results are asked for. The power of comparison is on the whole weak.

*General History, 1066–1516.*—Certain subjects require more attention than has been given to them. These are (a) the reign of Henry III.; (b) the relations of England with France (especially with reference to Poitou and Aquitaine) between the death of John and the outbreak of the Hundred Years' War; (c) the relations of England and Scotland from the time of Edward III. onwards; and (d) the meaning of the phrase "Holy Roman Empire," which most candidates thought to be synonymous with the Papacy.

*General History, 1500–1715.*—In the weaker papers what knowledge there is is disconnected and undigested. Experience seems to show that the students should be taught first the meaning

and significance of the prominent features of the period, such as the Renaissance, the Reformation and Counter-Reformation, and the general policy of Spain, France, and the Empire; and that these should then be illustrated and emphasised by tracing their connection with and influence upon the history of our own country.

*Composition.*—In choosing their essay, candidates should take the subject they know best, and also note more exactly the wording of the question. Essays were more often too long than too short; hence carelessness, irrelevance, repetition, and defective punctuation were frequent. Better is it to diminish quantity, and to use the time available for more careful arrangement of material, construction of sentences, and choice of words. Candidates have also to learn that to write good English is not the same thing as to speak it. Many essays were too conversational in tone. On the other hand, the spelling of the great majority of candidates was good; and flippancy and slang were mostly conspicuous by their absence.

*Grammar.*—Definitions (*e.g.*, of personal pronouns) were unsatisfactory, and suffered generally from vagueness and inaccuracy. There is room for more exact grammatical knowledge, *e.g.*, of the difference between an adverb and a preposition, and of the functions of different pronouns.

*Shakespeare (Richard II.).*—This work suggests three criticisms. A large proportion of the papers show a tendency to diffuseness and irrelevance. On the whole, questions demanding appreciation of circumstances or phraseology were not well done. There is an obvious tendency in candidates to learn off by heart, from editions, character sketches, topics of discussion, and so forth. This should be discouraged.

*Poems of England.*—Many candidates appear to have had insufficient help in the preparation of the subject, and consequently much of the great historical value of these poems has been missed. Again and again astounding ignorance has been shown of the events of which the poems treat; whereas each poem, if properly studied, would be found to be one of the best means of teaching the history of its own period.

*Kingsley.*—The questions which required the candidates to make a selection of incidents from different parts of the book proved difficult for many, but they showed that they could take an independent line in the discussion of the most estimable persons appearing in the book.

*Geography, A Paper.*—The work varies in quality. Teaching is strongly reflected. The maps are usually correctly filled in, but this important knowledge is not often utilised in illustration. Consequently the general principles of the topography of a country, its relation to prevailing winds, its latitude (which is seldom known), and its resultant climate are never correctly applied to the distribution of population, the country's products, and its trade. There is an almost complete ignorance of even the correct names of the planetary wind systems. Every wind is a "trade" wind, and as a rule their directions are

given wrongly. When climatic results are correctly given the reasons offered would lead to the opposite result. The knowledge is for the most part merely reminiscent verbiage. If the candidates were first taught the wind systems, their causes, their modifications, their relations to surface features of sea and land, the climates of various latitudes and their surface modifications, then the special regions could be used as illustrations and results. The names of rivers, deserts, forests, mountains, plains and towns would not merely be names on a paper map but represent a true geographical conception. Industrial centres could be studied as local results due to local factors. The whole scheme would be homogeneous, not patchy, interesting and capable of expansion.

*B and C Papers.*—The questions on general geography were not well answered, and it seems clear that insufficient attention is given to those fundamental principles without which it is impossible to make a profitable study of geography. These should always be studied with an atlas, and should be copiously illustrated by examples not confined to the region selected for special study.

The practice of writing masses of irrelevant matter has decreased considerably.

The *Latin* grammar questions were generally answered fairly, except those on irregular verbs, which were done badly by many. The sentences were fairly done on the whole, but the simplest were done the worst, the most elementary rules being violated, and ignorance displayed of the commonest words. Many candidates seemed to have no knowledge of the position of the verb in a sentence.

In the second *Latin* paper the compulsory unprepared translation was, on the whole, badly done, though there were a few good versions. Some candidates did not translate a single word correctly: others translated a few isolated pieces, but missed the general sense. Clearly candidates had not studied the passage as a whole, reading it through several times, before beginning to write. The translation of passages from set books was well done by most candidates, but there were signs of memory work which ignored the actual text, and in some cases the influence of ill-digested "cram" from a published version seemed unmistakable.

*French, Paper I.*—The questions on the verbs were fairly answered by most candidates, but the knowledge shown of the pronouns and prepositions was very defective. Great looseness of construction and considerable inaccuracy in grammar were apparent in the questions to be answered in French. The sentences for translation from English into French showed improvement.

*Paper II.*—Many candidates showed a lack of vocabulary and wrote defective English, some renderings being practically nonsense. The passages from prepared books were not so well translated, but the answers to the questions on the subject-matter were sometimes good and concise.

*Paper III.*—The composition often showed

great want of care. Wrong genders, wrong position of pronouns, and ignorance of the use of the partitive article were also a frequent cause of loss of marks. The vocabulary was fair, the knowledge of syntax insufficient. The translation was usually good. The grammar was variable, the verbs often weak or bad.

*Algebra.*—The standard of attainment appears to be rising; but many candidates are insufficiently practised in elementary points of notation. Comparatively few understand how to verify their results. Numerical evaluation was not well done. A large number were unable to state a problem correctly in algebraic form. Some very good "graphic" work was done, and it seems that an increased number of candidates are being taught this method.

*Geometry.*—The standard of work was very considerably inferior to that of recent years. More attention must be paid to the teaching of fundamental principles if geometrical knowledge is to reach a satisfactory standard. The candidates gave proofs not sufficiently based on first principles, even when they were definitely requested so to do. Candidates should be careful to see that in their proofs they have really made use of the data and grasped the true requirements of the question. Attention must be called to the misuse of symbols such as  $\therefore$  and  $\therefore$ ; and also to misnomers such as "bisect" for "divide," "alternate" for "adjacent," "touch" for "cut," &c.

*Botany.*—With few exceptions, sufficient use was not made of sketches: when they were given, they were often not labelled, and were sometimes inadequate. The section on physics and chemistry showed a great deal of confusion between a barometer and a thermometer. The practical work was often well done. Some of the mistakes arose from giving points that were not asked for.

With regard to the answers to the theoretical questions, there was a tendency to regard the term "flower" as synonymous with "plant." Many of the purely descriptive answers were good. Very few candidates gave an intelligent explanation of the form of a leaf.

*Practical Chemistry, A Paper.*—The writing up of the journal of work done was on the whole good. Failure to get good marks was due:

(1) To a lack of management of the time at disposal, by waiting to begin an experiment until one was wholly completed, and also by doing a great many additional experiments of no value, neither asked for nor required.

(2) The second question was not properly read through by candidates.

(3) The calculation in question 1 proved too much for many candidates who, with all the data to hand, did not know how to finish the question. There are still many who leave their answers in factors and not in decimals.

The methods in common use for drying precipitates are very crude, and, in careless hands, tend to overheating and decomposition of the residues.

*Mechanics and Hydrostatics, A Paper.*—A very

fair average was attained by the candidates. The hydrostatics portion of the paper was, as a rule, well done, the mechanics not so well. In mechanics the candidates' ideas of the fundamentals, such as force, couples, and work, especially work, were often very vague, though they applied them readily enough to the case of the machine mentioned (the wheel and axle). It appears desirable that students should have a thorough grasp of fundamental ideas before proceeding to their application. Without this grasp the application becomes a mere effort of memory.

*Electricity and Magnetism, A Paper.*—In descriptive work marks were often lost by the use of insufficiently qualified terms. In some cases a good diagram compensated for this verbal ambiguity, but in others the diagrams were inadequate.

In calculations, mistakes were almost invariably due to faulty algebra and not to lack of scientific knowledge. A large majority failed to give a correct answer to the question on the generation of heat within a cell when its terminals are (a) connected through a resistance, (b) short-circuited.

*Hygiene.*—Irrelevance was a very conspicuous fault. Serious mistakes were made in answering the question dealing with the loss of heat by the body and the effect of different external conditions. Many used the terms heat and cold loosely, as applied in everyday life. The standard of the answers to other questions was fair.

## THE BRITISH ASSOCIATION AT PORTSMOUTH.

By G. F. DANIELL, B.Sc.

AMONG the varied enjoyments of a British Association meeting, none linger more pleasantly in the memory, and probably none have a deeper value, than the annual reunion of fellow-workers, with its birth of new friendships and strengthening of old ties. The common pursuit of scientific progress and social pleasures makes at once a vigorous finale to the holidays and a stimulating prelude to the coming term. Formerly the working programme appealed strongly to the student of pure science or of technology. To-day the change in the intellectual aspirations of the age has found its reflection in the activities of the Association. The dominant characteristic of this change appears to us to be the desire to regard social and humanitarian problems from the scientific point of view, and to base action on the principles and knowledge educated by scientific method. Thus we have to record the recognition of agricultural science as an established section, this being the outcome of the successful efforts which have been made during the last few years to treat the problems of agriculture by the methods of chemistry, of economics, and of biological science. The daily programmes, while retaining a variety of topics of pure science, show an increasing attention to such questions as aeronautics, the world's cotton-

supply, smoke-abatement, ventilation of ships, university agricultural departments, and the public finances of Ireland. Section L, the section devoted to Educational Science, has given, ever since its initiation in 1901, a strong lead in the movement of public opinion towards considering educational methods and organisation in their national and biological aspects. In the highly varied topics, and the yet more varied paths by which the speakers approached them, it was always apparent that the goal in view was the welfare of the community and the social fitness of the individual.

The proceedings of the section opened well with the dignified presidential address, which was delivered to an audience smaller than those of previous years. Doubtless readers of *THE SCHOOL WORLD* have by this time read Dr. Welldon's address, and have appreciated his command of the English language and the clearness of his vision when regarding university and public-school developments. Many will thank the bishop for his inspiring charge to those called to the profession of teaching.

The report<sup>1</sup> of the Committee on the Overlapping between Secondary Education and that of Universities and other Places of Higher Education was presented by Prof. Smithells, F.R.S. The committee published the results of certain inquiries, but as these related to a portion only of the ground to be covered, the report was to be regarded as an interim one, and recommendations were postponed. Thus the relationship between secondary schools and medical schools had not been considered during the last year's investigation. There seemed to be considerable difference of opinion as to the harm or benefit resulting from overlapping, and the main point brought out in the discussion was the existence of gaps between the teaching in the school and university teaching proper. Principal Griffiths and Prof. Gregory both laid emphasis on the fact that many of the students entered technical institutions and universities without having had a secondary education worthy of the name. Prof. Gregory pointed out that about 900 secondary schools, with 150,000 pupils, were recognised by the Board of Education; but most of the pupils left at fifteen years of age. In Germany the secondary-school course ended at the age of eighteen, and the school-leaving examination resembled that for a pass degree at Oxford or Cambridge.

There was a big discussion on the place of examinations in education. Mr. P. J. Hartog opened with a paper advocating a commission of inquiry into this important subject, and he was followed by Miss Burstall, who voiced the verdict of the headmistresses on the present examination methods. Sir William Ramsay advocated the replacement of ordinary public examinations by tests of specific capacity; but unfortunately we were unable to gather how this idea was to be carried out. Dr. T. P. Nunn considered that examinations might be made a powerful means of

inculcating sound ideas and instruction, of propagating improved methods of teaching, and of encouraging individuality in schools and teachers. Dr. Jessie White regretted that in the majority of schools there was no machinery for bringing the experience of the whole staff to bear on the problem of framing the curriculum of the school. Inspection of a school ought to include a full and free discussion of the work in a joint meeting of teachers and inspectors. Such meetings would help to eliminate the unfit from the inspectorate. Mr. W. D. Bently said that in the past elementary education had suffered from the imposition of examinations by an outsider, but the work of the National Union of Teachers had secured the substitution of public inspection for individual examination. Mr. A. A. Somerville regretted that the War Office had reverted to the policy of including too many compulsory subjects in the Army entrance examination. The policy of the War Office was helping to remove boys prematurely from school, which had an unsatisfactory effect upon the schools and universities. Miss C. L. Laurie said that the Association of Assistant-mistresses had passed a resolution, in harmony with that of the headmistresses, deprecating external university examinations for girls under sixteen years of age.

The general effect of two hours' discussion was to strengthen the plea for a strong commission of inquiry into the very difficult and wide problems raised, and the sectional committee subsequently decided to appoint a committee to investigate "the Aims and Influence of Examinations." Another subject which occupied the attention of the meeting was "Regulations affecting Secondary Education," in dealing with which Sir Philip Magnus approved the proposed Teachers' Council. The power given to the Board of Education to control Exchequer grants to universities was the subject of comment by Principal Griffiths and Prof. Gregory; the former was pessimistic, the latter optimistic.

A committee, of which Mrs. W. N. Shaw is secretary, has begun the large task of examining the educational work of Industrial Poor-law schools. Prof. Sonnenschein advocated the reforms in grammatical terminology which are contained in the well-known joint committee report.

Saturday was entirely devoted to excursions. The sunshine was almost too brilliant, and the great and in many respects unique attractions of Portsmouth and its neighbourhood were explored in vigorous fashion. Of course the botanists botanised—there is no stopping botanists—but most of the devotees of science cults merely "excursed" and had a glorious day.

On Monday, September 4th, the section resumed its labours with renewed zest, and the discussion of the problems of dealing with the mentally defective and the feeble-minded was admirably sustained throughout the morning, the quality of the speeches being undeniably high. Prof. J. A. Green presented a report which con-

<sup>1</sup> See *THE SCHOOL WORLD*, September, 1911, p. 343.



tained a large amount of information, never before published, as to the methods used in the diagnosis of feeble-minded children. Prof. Green urged the need for some standardisation both of diagnosis and subsequent treatment. Mr. G. F. Daniell directed attention to the large proportion of adolescents leaving schools for the defective without proper after-care. Dr. A. F. Tredgold discussed the definitions of mental deficiency, and concluded that the question of diagnosis practically resolved itself into the differentiation of the feeble-minded from the dull and backward. (It may here be mentioned that the "Report on the Mental and Physical Factors involved in Education, 1911," contains a valuable appendix on "Methods of Testing Mental Deficiency," by Dr. F. C. Shrub-sall.) Mrs. Burgwin gave an interesting account of the work of the London Special Schools, and asked for further legislation with regard to pupils who leave the schools unfit for the full liberty of the ordinary community, but would, under supervision, work profitably under the colony system. This paper led naturally to the description of farm colonies for the feeble-minded, which was read by Miss Dendy. No paper roused more interest and won more applause than did the account which Miss Dendy gave of the admirable pioneer work which is being carried out at Sand-bridge. Dr. Saleeby treated the question from the eugenic point of view in a vigorous manner, and his advice that sterilisation should be employed in certain cases received support from the audience. The mental tests which have recently come into vogue among experimental psychologists had been applied to backward children for three years by Mr. Abelson, who gave an account of his method, employing Spearman's correlational coefficients. Mr. Abelson's results confirmed the popular conception that there is a central factor—a general ability—common to all mental processes. This central factor appeared to be intellectual rather than conative.

The discussion on practical education in dock-yard and naval schools was opened by Mr. J. Dawe at the final meeting. Mr. Dawe had no difficulty in convincing his audience of the effective character of the instruction given, and he received very warm support from subsequent speakers, including Sir William White, K.C.B., and Prof. Worthington, F.R.S. Several members had an opportunity later in the day of visiting H.M.S. *Fisgard*, the school for training boy artificers, under the guidance of Mr. W. H. T. Pain; and the work inspected more than satisfied a band of critical observers.

The next subject was a melancholy one—the present position of German in secondary schools. Mr. G. F. Bridge put the case for more attention to German with his usual lucidity. The position was getting more grave each year, and our neglect of German literature was a reproach to a nation which esteems itself cultured. The Board of Education showed no sympathy with German. The feeling of the meeting was clearly on Mr.

Bridge's side. Mr. Hugh Richardson spoke of the grave political consequences which might easily flow from the prevalent ignorance among English public men of German language and sentiment. He referred to Lord Haldane's knowledge and sympathy with German literature and character as a valuable asset. (To our readers it may well seem significant that it should be possible thus to single out an individual Cabinet Minister.) Dr. Ernest Gray said that there was no change so recreative as to betake oneself to a foreign country with foreign friends and atmosphere. The knowledge of a foreign language enabled one, in a few minutes' reading, to transport oneself in imagination—to travel in one's armchair. He had found that, once a start had been made with a language, it was not difficult to advance far enough in its study to be able to enjoy this valuable and inexpensive recreation.

Mr. G. F. Daniell read a short paper on "School Books and Eyesight," and mentioned that a committee had just been appointed by the section to deal with this important matter. The proceedings of the section concluded with a vote of thanks to the president, which was moved by Prof. Gregory and seconded by Dr. Ernest Gray with eloquent cordiality.

Perhaps the most significant feature of the debates was the fact that throughout the whole programme there was no rubbish; every speech was worth listening to and a few were first-rate. As has already been remarked, the numbers present were below the average of former years. There may be several reasons (e.g., the recent strike) for this, but it is to be hoped that at Dundee in 1912 and at Birmingham in 1913 there will be large audiences to enjoy such a varied and nutritive bill of fare as was provided by the organising committee and Mr. J. L. Holland, the hard-working recorder. In addition to the more formal proceedings, the members had many opportunities of widening their experience, whether of educational institutions or of social functions. Mr. Oliver Freeman, the head of the municipal technical college, showed a numerous party the modern buildings and equipment of this civic institution for technical training. The presidential address in the Town Hall was of wide interest, and the popular lectures on "The Physiology of Submarine Work," "Links with the Past in Plant-life," and "Rain" were brilliantly illustrated. Of charming garden-parties we heard from colleagues; our own tastes led us to hear Mr. Enock on "Fairy Flies" and Captain Rawling on "New Guinea Explorations." We even found time for private expeditions to Sandown and Horndean. Last, but not least, the sections were amalgamated by the fusing power of a common interest on the Monday afternoon, when the Admiralty took members on H.M.S. *Revenge* into the Solent, and the commander-in-chief directed a display of torpedo and submarine practice which provided a unique and memorable spectacle.

The best feature of these annual meetings is

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not measurable in terms of C.G.S. or other units—the gain of new friends, the reunion with old ones, the sense of solidarity among the rank and file and the leaders of the intellectual army under whose direction “patient armaments achieve the bloodless victories of peace.”

#### PERSONAL PARAGRAPHS.

SEPTEMBER is not apt to be thronged with educational events. Most schools have barely met; none have got into their stride again. But for all this idlesse, Death does not stay his hand, and educationists fall out of the ranks, and governing bodies sometimes have to make a belated choice of new headmasters to carry on their schools in Michaelmas term.

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AN educationist of distinction, though not an actual teacher, recently died in the person of the Rev. Dr. David J. Waller, who, born in 1836, had entered the Wesleyan ministry at the age of twenty. It was in 1881 that the Wesleyan Conference at Liverpool appointed him secretary to the Wesleyan Education Committee, and he soon became an authority on the administration of elementary schools. In 1886 he was able to give important evidence before the Royal Commission on Education, and he also served on the Board of Education's first Consultative Committee, as well as on the Teachers' Registration Council. He lived long enough to see the different sections of the educational world sufficiently welded to force the hands of the Board of Education in respect of professional registration for teachers.

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DR. JOHN BEDDOE, the eminent anthropologist, recently died at Bradford-on-Avon at the age of eighty-four. Born at Bewdley in 1826, and educated at Bridgnorth School, University College (London), Edinburgh University, and Vienna, he qualified as M.D., F.R.C.P. In the Crimean war he served on the Civil Hospital staff, and was in practice at Clifton from 1857 to 1891. Among other anthropological works, he wrote “Contribution to Scottish Ethnology,” “The Races of Britain,” and “Stature and Bulk of Man.” He had been president of the Anthropological Institute, and was hon. professor of anthropology at University College, Bristol. He was also keenly interested in archæology.

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THE University of Oxford, which welcomed Tylor, the father of the science of anthropology, is now supplying funds, partly out of the University Common Fund and partly through some of the colleges, for an expedition to the islands of Normanby, Fergusson, and Goodenough, in British New Guinea, to be undertaken by Mr. David Jenness, of Balliol College, who started early in September. He will avail himself of the scientific value of the phonograph, which should prove an invaluable means of recording native song and native speech. Mr. Jenness's general plan is

to spend a few weeks in cruising round the islands, to try to get on friendly terms with the people, and with the goodwill of one of the chiefs to settle down, unaccompanied, for about a year amongst people who are admittedly cannibals. This programme appears to be sufficiently venturesome even for a plucky Oxford graduate.

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To the headmastership of Louth School has been appointed Mr. S. R. Unwin, of St. Albans School. Mr. Unwin was educated at Rossall School and at Selwyn College, Cambridge, and was for some years a master at Loughborough Grammar School. He succeeds Mr. A. H. Worrall, who was recently appointed principal of Victoria College, Jersey.

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THE vacancy at King Alfred's School, Wantage, created by the appointment of the Rev. M. Pearson to Ardingly College, has been filled by the election of Mr. William Arthur Barron, assistant-master at Bedford Grammar School.

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THE new principal of the Todmorden Secondary School is Mr. Ernest Farrar, B.A. (Cantab.) and B.Sc. (London). He has had a varied and somewhat exceptional career, which includes a university career subsequent to several years' experience of teaching. He was educated at Leeds Central High School and Leeds Pupil Teachers' College. Then followed two years' training at the Borough Road Training College, and a year spent in Germany in visiting schools and studying German educational methods. He next served a year as form-master and teacher of German at the Cockburn High School, Leeds; three years as science and mathematical master at the Pupil Teachers' College and Thoresby High School, Leeds; and a fifth year as head of the chemistry department of the Trade and Grammar School, Keighley. In 1908 he went as an exhibitor to Trinity College, Cambridge, and in June, 1909, was placed in the first class in part i. of the Mathematical Tripos. In March, 1910, he was elected a senior scholar of his college, and in June of this year took a first class in part ii. of the Mathematical Tripos and a first class in part ii. (physics) of the Natural Science Tripos.

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DR. ROUSE, whose knowledge of languages ancient and modern is probably equalled by few—even by the young *prima donna* Mignon Nevada, who recently sang at one concert in ten languages, including Esperanto—is sticking to his guns in the matter of the “direct” method of teaching Latin. The meeting at Bangor, which I recently foreshadowed, has taken place, and no fewer than 110 teachers from different parts of the country have been trying their hands on fifty-five school children. If any of these fortunate children were by nature teacher-baiters, they must have had the time of their lives. Good results in the actual speaking of Latin seem to have been achieved after ten days' instruction, and there can

be little doubt that the connection of a language with the ordinary acts of everyday life which are bound to interest, whether we will or not, is bound to mean ease in the acquisition of that language.

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I REGRET to hear of the death of Mr. Sidney Thomas Irwin, who had been a master at Clifton College for some thirty-five years. In literary circles he will probably be best remembered by his charming edition of the letters of his colleague, T. E. Brown, the Manx poet, a book the reading of which gave me genuine pleasure some few years ago. Mr. Irwin was educated at Wellington College, and Lincoln and Exeter Colleges, Oxford. He took a first class in Classical "Mods" and a second in Lit. Hum. (1871). After two years' experience as a master at Westminster School, he went to Clifton, where he was greatly liked. He had obviously been failing for some time, but circumstances prevented him from throwing off the harness as he should have been entitled to do.

ONLOOKER.

## THE POSITION OF GEOGRAPHY WITH REFERENCE TO OTHER SUBJECTS.<sup>1</sup>

By Colonel C. F. CLOSE, C.M.G., R.E.

It is no secret that the geographical world is not unanimous about the meaning and object of geography. The definitions suggested by such writers as Mr. Chisholm, Prof. Davis, Prof. Herbertson, Mr. Mackinder, or Dr. Mill are not in agreement. From time to time an attempt is made to formulate some statement which shall not commit the subscribers to anything very definite. But differences of opinion on the subject persist.

There are, of course, a great many ways of approaching the question. Let us, for example, examine the proceedings of such representative bodies as the British Association and the Royal Geographical Society, and of such assemblies as the international geographical congresses, and let us see if we can find out what is, as a fact, the scope of the subject as dealt with by these bodies. They are institutions which work in the full light of day, and they are too large to be dominated for any length of time by individuals. If we can find any working principle, any common term, amongst these societies, we shall have gone some way towards arriving at a solution of the problem.

A simple method of investigation is to discuss the character of the publications of these societies and of the lectures delivered before them. And I feel that I cannot do better than devote most of this brief analysis to the Royal Geographical Society and its admirably edited journal. Here we are on safe ground. If an inhabitant of another planet wished to know what we understand by astronomy, we could confidently refer him to the Monthly Notices of the Royal Astronomical Society. If he were curious about the condition of geology, we should give him the volumes of the Geological Society. And, if he were so rash as to ask what are the objects of the modern mathematician, we should hand him the papers published by the London Mathematical Society. *The Geographical Journal* occupies no lower a position with reference to geography than do the other journals mentioned with reference to the sciences with which they deal.

In analysing the contributions to the Royal Geographical Society, it is important to start with an honest classification. In the endeavour to be impartial, I have chosen the classification which was adopted for the last International Geographical Congress, i.e., that held at Geneva in 1908. This congress was divided into fourteen sections. It will serve to clear the ground if we deal first with sections 12, 13, and 14; these are the teaching of geography, historical geography (which was mainly concerned with the history of travel and exploration), and rules and nomenclature. For the purpose of discovering what geography is, these three sections will not be of any assistance. Every subject has its educational side, its history, and its rules and nomenclature. The subject proper was, therefore, divided into eleven sections. The eleven sections are the following:

- (1) Mathematical and cartographical geography.
- (2) General physical geography.
- (3) Vulcanology and seismology.
- (4) Glaciers.
- (5) Hydrography (potamography and limnology).
- (6) Oceanography.
- (7) Meteorology and climatology; terrestrial magnetism.
- (8) Biological geography.
- (9) Anthropology and ethnography.
- (10) Economic and social geography.
- (11) Explorations.

Before applying this classification to the work of the Geographical Society, I wish to direct attention to the extremely frank way in which vulcanology, seismology, meteorology, climatology, terrestrial magnetism, anthropology, and ethnography are included in geography. The list, in fact, covers ground occupied by several sections of the British Association.

I have investigated the work of the Geographical Society for the five complete years 1906 to 1910. The original contributions to *The Geographical Journal* have been examined for that period, omitting from consideration contributions on the subjects of teaching, the history of exploration, and rules and nomenclature.

There are altogether 296 original papers which come under one or another of the eleven headings given above. Of these papers, 171, or 57 per cent., deal with explorations and travels. There is a great drop to the next largest section, general physical geography, which accounts for thirty papers, or about 10 per cent. Adhering to the order of the Geneva Congress, the complete list is as follows:

### ORIGINAL CONTRIBUTIONS TO THE PROCEEDINGS OF THE ROYAL GEOGRAPHICAL SOCIETY DURING THE FIVE YEARS 1906 TO 1910.

| Subject  | Percentage |
|--|------------|
| (1) Mathematical and cartographical geography          | 3          |
| (2) General physical geography                         | 10         |
| (3) Vulcanology and seismology                         | 5          |
| (4) Glaciers   | 3          |
| (5) Hydrography (potamography and limnology)           | 5          |
| (6) Oceanography                                       | 3          |
| (7) Meteorology and climatology; terrestrial magnetism | 3          |
| (8) Biological geography                               | 1          |
| (9) Anthropology and ethnography                       | 3          |
| (10) Economic and social geography                     | 7          |
| (11) Explorations                                      | 57         |

The main conclusion is obvious enough. For the principal geographical society in the world, geography is still mainly an affair of explorations and surveys; if to this item we add cartography, we account for 60 per cent. of the activities of the society.

There is another important deduction which is natural and unforced: the papers on vulcanology and seismology and on glaciers could have been read with perfect appro-

<sup>1</sup> From the presidential address delivered to the Geographical Section of the British Association at the Portsmouth meeting, 1911.

priateness before the Geological Society, those on meteorology and climatology before the Meteorological Society, and those on anthropology and ethnography before the Anthropological Society.

We may sum up the results of this brief investigation into the work of the Royal Geographical Society by saying that 60 per cent. of it is concerned with exploration and mapping, and that some of the remainder could be dealt with appropriately by the learned societies concerned, but that the Geographical Society serves as a popularising medium. It also serves a useful purpose as a common meeting-ground for vulcanologists, seismologists, oceanographers, meteorologists, climatologists, anthropologists, and ethnographers.

Another line of investigation may be profitably pursued. Who are, by common consent, the leading geographers of the world? No doubt the explorers come first in popular estimation, such men (omitting British names) as Peary, Charcot, Sven Hedin. Then after this type would come the men of learning who stand out in any international congress. These men stand out because they have, by their own exertions, increased the sum of human knowledge. Omitting for the moment the consideration of exploration and mapping, we find that in an international congress a large number of the most celebrated geographers are eminent as geologists. In such a gathering we can also pick out those who have advanced the sciences of meteorology or anthropology. Is there such a thing as an eminent geographer *per se*? There are those who say that, apart from explorers, the nearest approach to such a being is the compiler who popularises the results obtained by men working in definitely scientific branches of knowledge.

To revert to the ideas gathered from an international congress, let us suppose the position reversed. Let the functions of geology be supposed to be somewhat in dispute and those of geography perfectly definite, and, further, let us suppose that at an international meeting of geologists a large proportion of the men of real distinction were geographers. We may in this way get an idea of what geography looks like from the outside.

I think that at this point we may explain, in a preliminary way, the work of the geographical societies, after the fashion of the "Child's Guide to Knowledge":

*Question.* What is geography?

*Answer.* There is no generally accepted definition of geography.

*Question.* Can we not form some idea of the scope of the subject by considering the work of the Royal Geographical Society?

*Answer.* Yes; 60 per cent. of this work deals with explorations, surveys, and mapping, and of the rest a considerable portion consists of matter which could be discussed appropriately before the Geological, Meteorological, and Anthropological Societies.

*Question.* What, then, leaving maps out of consideration, are the useful functions of a geographical society?

*Answer.* A geographical society serves to popularise the work of men who labour in certain fields of science, and such a society forms a very convenient meeting-ground for them.

*Question.* What is a geographer?

*Answer.* The term geographer is sometimes applied to explorers; sometimes to men who compile books derived mainly from the labours of surveyors, geodesists, geologists, climatologists, ethnographers, and others; sometimes to those who compile distributional maps.

*Question.* Can a geographer who has not made a special

study of one or more of such subjects as geodesy, surveying, cartography, geology, climatology, or ethnography hope to advance human knowledge?

*Answer.* He can do much to popularise these subjects, but he cannot hope to do original work.

Another way of attempting to ascertain the meaning and object of geography is to study the character of the instruction given in the universities, and we may suppose that this can be fairly judged by the contents of standard text-books. Let us take, for example, the "Traité de Géographie Physique" of M. E. de Martonne, formerly professor of geography at the University of Lyons, now professor at the Sorbonne. The work in question was published in 1909, and is divided into four main sections—climate, hydrography, terrestrial relief, and biogeography.

The first sentence of the book is "What is geography?" Twenty-four pages are devoted to discussing this question, which the writer, with all his skill and learning, finds it difficult to answer definitely and convincingly. One receives the impression of the dexterous handling of a difficult question, and of a generally defensive attitude. In this book geography is said to depend on three principles. The principle of *extension*, the principle of *co-ordination*, and the principle of *causality*. As an illustration of the meaning of the principle of extension, we are told that "the botanist who studies the organs of a plant, its conditions of life, its position in classification, is not doing geographical work; but if he seeks to determine its area of extension, *il fait de la géographie botanique*." I believe that we have here reached a critical point. The claim is that when, in the prosecution of a botanical study, a map is used to show the distribution of a plant, the use of such a map converts the study into a branch of geography. Well, it is a question of definition and convention which cannot, I imagine, be settled except by the general agreement of all the sciences. We have to make up our minds whether a man who constructs a distributional map is doing "geography." One thing, I suppose, is not doubtful. When the map is made it will be better interpreted by a botanist than by a person ignorant of botany. In the same way the discussion of an ordinary geological map is best undertaken by a geologist, and so on. It would appear that geography, in the sense mentioned, is not so much a subject as a method of research.

It will be convenient here to say a few words about the relations between societies and schools of geography and those two important subjects geodesy and geology. In the palmy days of the Ordnance Survey, when Colonel A. R. Clarke was still at work, the headquarters of geodesy in England was doubtless at Southampton. But, curiously enough, there is not, and has never been, in the United Kingdom a society or body specially charged with the study of geodesy. Geodesy, in fact, has no regular home in these islands. But the Royal Geographical Society has done a good deal in the past few years to stimulate an interest in the subject, thereby fulfilling what I believe to be one of the Society's most useful functions, that of popularisation.

If, however, an authoritative opinion were required on any geodetic question, where could it be obtained? Well, I suppose there is no doubt that the headquarters of this branch of learning is the International Geodetic Association; but the scientific work itself is being largely carried out at the Geodetic Institute at Potsdam, by the Survey of India, by the geodetic section of the Service Géographique, by the U.S. Coast and Geodetic Survey, and by similar bodies. Geodesy, especially in its later develop-

ments, is a definitely scientific subject which demands much study and application. It is but slightly touched upon by the schools of geography. Perhaps I may here point out that geodesy is by no means mainly concerned with the shape of the spheroid. The chief problems are now those of isostasy and local attraction generally, the real shape of the sea-surface, the continuity of the crust of the earth and changes of density therein.

The position in which geography finds itself with regard to geology can be clearly seen if reference is made to the new edition of the "Encyclopædia Britannica." In the eleventh volume of this work are two important articles, "Geography," by Dr. H. R. Mill, and "Geology," by Sir Archibald Geikie. In the article on "Geography" we find a description of geomorphology as that part of geography which deals with terrestrial relief, and a remark is made that "opinion still differs as to the extent to which the geographer's work should overlap that of the geologist." In this article, however, most of the authorities quoted are geologists, and the author remarks that "the geographers who have hitherto given most attention to the forms of the land have been trained as geologists."

Turning to the article on "Geology," we find an important section on "Physiographical Geology," which is described as dealing with the investigation of "the origin and history of the present topographical features of the land." Now this is the exact field claimed for geomorphology. It has been observed by others, notably by Prof. de Martonne, that the interpretation of topographic forms has been most successfully undertaken by geologists, and he gives as an instance of this the good work done by the United States Geological Survey.

I do not know whether any geographer untrained as a geologist has contributed anything of value to geomorphology.

Another test which may be applied is the following. Let us imagine geography to be non-existent, and note what the effect would be. Suppose there were no such things as Government geographical services, or schools of geography at the universities, or geographical societies. The first and most obvious result would be that most, if not all, of our apparatus of exploration and mapping would have disappeared. But as we are all in agreement as to the necessity of this branch of human effort, let us restore this to existence and examine the effect of the disappearance of the rest.

So far as concerns geodesy, we should still possess the International Geodetic Association, the Geodetic Institute at Potsdam, and the United States Geodetic Survey and similar bodies. But we should have lost the means of popularising geodesy in the proceedings of geographical societies; and, as there would be now no geographical text-books, elementary geodesy would not find itself between the same covers as climatology and geomorphology.

As regards geomorphology, or physiographical geology, not very much difference would be noted. The geologists would still pursue this important subject; but here again their writings would perhaps appeal to a more expert and less popular audience, although it is not to be forgotten that many admirable introductions to the subject have been written by geologists.

Much the same might be said about meteorology and climatology. There would be text-books devoted to these studies, but there might be a diminution of popular interest.

Such names as phyto-geography would disappear, but the study of botany (if we permit it the use of distributional maps) would not be affected. The loss to know-

ledge would be mainly that of getting to a certain extent out of touch with the public. The constitutions of the various learned bodies would remain the same, and so would their functions. The constitution of the Royal Society, which has never recognised geography as a subject, would be totally unaffected.

If we thus study the relations between geography and other subjects we are almost bound to arrive at the conclusion that geography is not a unit of science in the sense in which geology, astronomy, and chemistry are units. If we inquire into the current teaching of geography, and examine modern text-books, we find that most of the matter is derived directly from the workers in other fields of study. And if we inquire into the products of geographical societies, it becomes evident that one of the most important functions fulfilled by these useful bodies is to popularise the work of geodesists, geologists, climatologists, and others, and to provide a common meeting-ground for them. If geography had been able to include geology and the other sciences which deal with earth-knowledge, it would then, indeed, have been a master science. But things have worked out differently.

I shall very probably be told that, in laying some stress on the above-mentioned aspects of the subject, I have forgotten that the main purpose of geography is the study of the earth as the home of man, or the study of man as affected by his environment, and that, however necessary it may be to begin with a foundation of geodesy, geology, and climatology, we must have as our main structure the investigation of the effect of these conditions on the races of man, on human history and human industry, on economics and politics.

It is obviously and abundantly true that no student of history, economics, or politics can disregard the effect of geographical environment. But it is not, as a fact, disregarded by writers on these subjects. The question is, to a large extent, whether we should annex these portions of their studies, group them, and label them "geography." Our right to do this will depend on the value of our own original investigations. We have the right to use the results obtained by others provided that we add something valuable of our own.

Before this human aspect of geography—or, for that matter, any other aspect of the subject—is recognised by the world of science as an independent, indispensable, and definite branch of knowledge, it must prove its independence and value by original, definite, and, if possible, quantitative research.

## THE SCIENTIFIC MISAPPROPRIATION OF POPULAR TERMS.<sup>1</sup>

By Prof. J. W. GREGORY, F.R.S.

ONE of the main functions of the British Association is to prevent the development of a scientific caste in this country. The essential ideas of caste and science are diametrically opposed; nevertheless, the spirit of caste has in times past invaded the spirit of science, with the natural consequence that the eager explorers of knowledge became the academic guardians of tradition; and the same invasion now would deprive science of the popular sympathy and support which are more than ever necessary for its steady development. The members of the corresponding societies have special opportunities for helping that part of the Association's mission, for their personal intercourse with all sections of the community enables them to do much

<sup>1</sup> Address to the Conference of Delegates at the Portsmouth meeting of the British Association.

"to obtain a more general attention to the objects of science." Their influence must be exerted mainly through words, and the proper use of words is a matter of vital importance to the welfare of science. The recent appeals for the improvement of the language of scientific literature are therefore direct contributions to scientific method; and as the societies represented at this conference are the strongest link between the technical specialist and those who take a friendly interest in science, special sympathy may be expected here with the complaints against the unintelligibility of some scientific writings owing to the excessive use of technical terms. I wish this afternoon, without denying that technical terms are sometimes used unnecessarily, to direct attention to a more neglected and insidious evil—the use of well-known English words with a technical meaning. The temptation to adopt an old word for a new idea, instead of inventing a fresh term, is often strong. It saves trouble—at the time. The old word is probably shorter than a new one would have to be, and its use avoids burdening a passage with an unknown and perhaps uncouth term. A sentence in which all the words are familiar appears to present no difficulties; a reader skims lightly over it pleased with the lucidity of the author and ignorant of the fact that it has been misunderstood, as the leading word conveyed to him a meaning different from that intended by the writer. The danger of a passage being misunderstood is more serious than that of its being not understood. It is worse to be misled by a plausible phrase than to be startled or repelled by a correct technical statement. A new word compels a conscientious reader to determine its true meaning, and should help him to a clear conception of the fresh idea; whereas the use of an old word with a new meaning discourages inquiry and encourages slovenliness in work and thought. The use of popular phraseology may render scientific literature apparently less strange; but if that phraseology be incorrectly used, the ultimate effect is to increase the divergence between the scientific and popular languages, and the estrangement between science and public opinion. For the scientific use of terms inconsistently with their ordinary meanings is apt to persuade the layman that the language of science is so different from his own that it is no use attempting to understand it.

Most sciences have adopted popular terms with new and restricted meanings; and if the origin of such a word be forgotten, scientific writers are apt to treat any use of it in its original sense as a popular blunder. For example, zoologists not only now reject spiders from the class of Insecta, but treat the idea that a spider is an insect as a mistake due to simple ignorance. Thus, to quote a recent standard work, J. H. and A. B. Comstock, in their "Manual for the Study of Insects" (1909, p. 12), remark that spiders "are often mistaken for insects," although the authors have abandoned "Insecta" as the name of the class in favour of Hexapoda. The word insect is much older than modern systematic zoology and the class Insecta. The word insect is derived from the Latin *insectum*, which is based on the verb *insecare*, "to cut into"; and it was used for animals whose bodies are notched or incised into sections. This meaning of the word is well expressed in the definition by Philemon Holland, who is the earliest English author quoted in the "New English Dictionary" as having used the word insect. In his book, "The Historie of the World, commonly called the Naturall Historie of C. Plinius Secundus" (1601), he says, "Well may they all be called Insecta, by reason of those cuts and divisions, which some have about the necke, and others in the breast and belly; the which

do go round and part the members of the bodie, hanging together only by a little pipe and fistulous conveyance."

The class Insecta was based by its founder, Linnæus, on the segmentation of the body, and not on the number of legs; it therefore included scorpions, millepedes, and spiders. It was not until half a century later that Lamarck excluded spiders from the class Insecta; and as late as 1864 we find so distinguished a naturalist as Bates<sup>1</sup> remarking that the spiders "Mygales are quite common insects." Even such a recent standard modern cyclopædia as the "Jewish Encyclopædia"<sup>2</sup> retains the millepedes as insects. The term insect should not, however, be applied to a coral polyp; "coral insect" is justly denounced as a misleading blunder, due to ignorance of the nature of the coral animal. The terms *insectum* and insect according to their original usage no doubt included worms, and Holland expressly mentioned earth-worms as insects. In many worms, however, the body is not divided into segments, and worms were therefore early and appropriately excluded from insects; so Milton writes<sup>3</sup> in his description of the bower in Eden:

"Other creature here,

Beast, bird, insect, or worm, durst enter none."

Johnson's Dictionary (first edition, 1755) accepted a definition restricting insects to animals whose body is nearly divided in the middle into two parts. "Insects may be considered together as one great tribe of animals; they are called insects from a separation in the middle of their bodies whereby they are cut into two parts, which are joined together by a small ligature, as we see in wasps and common flies." This definition, while admitting spiders, excluded worms. The present zoological separation of insects from other air-breathing arthropods is based mainly on the presence of six legs. The term Hexapoda is therefore more suitable for the class as now defined than Insecta; and the restriction of Insecta in systematic zoology to a group based not on the insecting of the body but on the number of legs, is less accurate and appropriate than its previous use in zoology and in popular English. It would seem better to admit that the spider is an insect, but insist that it is not a hexapod.

The term worm, on the other hand, illustrates cases in which a restriction of popular meaning is both appropriate and convenient. A worm was originally not necessarily one of the Vermes of the zoologist. Thus the worms mentioned in the Old Testament included various insect larvæ. Dr. Ridewood tells me that the manna collected by the Israelites in the desert was probably a small lichen, and that the worms bred in it<sup>4</sup> were probably fly grubs; and the references by Job and Isaiah to worms that cover the dead may include both insect grubs and nematodes. When Job reminds the sinner of the worm that "shall feed sweetly upon him,"<sup>5</sup> he had in mind the larvæ of blow-flies; and though the worms that ate Herod<sup>6</sup> may have been an endoparasitic worm or fluke, the worm that caused the withering of Jonah's gourd<sup>7</sup> was probably a beetle larva.

In popular English, moreover, worms always included snakes, as shown both by Dr. Johnson's definition of a worm, "A small, harmless serpent that lives in the earth," and by Shakespeare in Cleopatra's inquiry:

"Hast thou the pretty worm of Nilus there,  
That kills and pains not?"<sup>8</sup>

1 "A Naturalist on the Amazon," p. 96.

2 1906, vol. vi., p. 105.

3 Exodus, xv. 20.

4 Acts, xii. 23.

5 "Antony and Cleopatra," v. 2.

6 "Paradise Lost," iv.

7 Job, xxiv. 20.

8 Jonah, iv. 7.

Uniformity between popular and zoological terminology can best be secured in regard to the term worm by inducing the public to use it only for one of the Vermes, for it is less necessary to have one term for all creeping things than to distinguish noxious snakes and centipedes from the lowly and useful worm.

The word fish illustrates how a popular word may become unduly extended and then be again restricted with fuller knowledge. The word is of very ancient origin, and was probably originally limited to what the zoologist accepts as fish. The term fish is not derived from the primitive Aryan language, and it was not introduced until the Latin-Teutonic section had separated from the Indian and the Greek; and as the term was invented by people who apparently had no knowledge of the sea, they doubtless used it for fresh-water fish.<sup>1</sup> The primitive hunters who went to the coast may have extended it to shellfish, and it was adopted in the English crayfish by a corruption of the French *écrevisse*. When whales and dolphins were discovered, they were accepted as fish in ignorance of their affinities, for such aquatic animals as seals and otters were never included among fish, since their mammalian characters were obvious. That whales, porpoises, and their allies are not fish is now admitted in current language, though the old usage survives among whalers. The terms whale-fishery and seal-fishery are firmly established; but they are unobjectionable, because those industries have so many important features in common with the capture of fish. The general current limitation of fish to the fish of the zoologist is only a return to the primary meaning of the word.

Chemistry supplies an excellent illustration of the justifiable adoption of an old term with a revised meaning. Element is used in its later classical meaning, and Chaucer in 1380 shows that it was used in Early English in a similar sense. He says in the *Frere's Tale* (line 206):

"Make ye yow newe bodies alway  
Of elementz."

Its modern chemical use means the resurrection of the word element to a new period of usefulness.

The chemical adoption of the terms metal and non-metal for the two classes of elements is, on the other hand, an example of the inconvenience that results, when a new definition is only approximately coincident with a well-established current meaning. The word metal appears to be derived from the Greek *μέταλλον*, connected with *μεταλλάω*, "to seek after," through the Latin *metallum*, a mine or quarry, or substance obtained by mining. Hence road metal for stone is correct.

By the time of Johnson the word metal was usually restricted to those products from mines which have metallic as distinct from earthy or stony properties. Johnson's definition—"We understand by the term metal a firm, heavy, and hard substance, opaque, fusible by fire, and concreting again when cold into a solid body such as it was before, which is malleable under the hammer, and is of a bright, glossy, and glittering substance where newly cut or broken"—states the general idea of a metal.

The chemical adoption of the word for the larger of the two classes of elements has resulted in the use of the word metal in science with two contradictory senses; thus in elementary geology the word is used with its chemical meaning; but in economic geology metal is used in its commercial sense.

Sodium and potassium are therefore metals in elementary

geology and academic mineralogy; but they are not metals in advanced economic geology. This double use of the word is an occasional source of confusion and discounts any good advice that may be given to students as to precision in the use of terms. It is perhaps too late to change, but it would have been better if the chemists had adopted technical terms for the two groups of elements, instead of applying the term metal to a material so unlike the ordinary idea of a metal as is sodium.

Geology has been a particularly flagrant sinner in the misuse of popular terms. Its nomenclature has not only unconsciously absorbed and modified many English words, but committees of experts have deliberately committed such wholesale piracy that our language has been left bankrupt in some departments. Thus terms are needed in stratigraphy for the various subdivisions of the sedimentary rocks and for the lengths of time occupied in their deposition. The International Geological Congress proposed the following series of terms, beginning with the larger divisions:

| Formation | Equivalent Time |
|-----------|-----------------|
| Group.    | Éra.            |
| System.   | Period.         |
| Series.   | Epoch.          |
| Stage.    | Age.            |

Although a systematic nomenclature would be very useful, this scheme has not been generally adopted; and I think the reason is that, by assigning definite meanings to all the indefinite terms available, there is nothing left for use in an indefinite sense. Thus a number of beds, which together may be either more or less than a subdivision of a system, cannot be called a series without risk of misunderstanding. All the above eight terms are required for use in geology with their current English meanings. The scheme proposed by the International Geological Congress involves using these words sometimes in a technical and sometimes in a non-technical sense. In literature the difficulty may be overcome by printing the words with capital letters when they are used as the names of definite divisions; but that is impossible in speech. The principle recommended by the International Geological Congress was excellent, but the scheme proposed has proved impracticable owing to its application of old words to new things.

Buckman adopted a sounder policy when he introduced the term *Hemera* for the time equivalent to a zone.

Geologists have adopted some common words with meanings which render geological phraseology unintelligible or even ludicrous to the man who has not been warned that they require special interpretation. Thus the need in elementary teaching for emphasising the difference between mineral species and mineral aggregates has led to the frequent use of the term mineral as an abbreviation for mineral species. Some authors have been led by this practice to deny that mineral aggregates are minerals, and therefore assert that coal, most iron ores, oil shale, mineral oil, &c., are not minerals. According to that view the mineral industry has little concern with minerals; and the mineral resources of the British Isles, which are generally regarded as extensive, are reduced according to this nomenclature to practically nothing.

Another triumph of dauntless logic is the use of the word rock. It is no doubt convenient, when speaking of the crust of the earth, to have one term to cover all its materials; and rock is used in this way just as the dust in the atmosphere and the salts in the sea may be included with the air and the water. Hence has arisen the geological convention of calling any large constituent of the earth's crust a rock, quite regardless of the cohesion of

<sup>1</sup> See O. Schrader, "Prehistoric Antiquities of the Aryan Peoples," 1890, pp. 217-218, 227-228, 353-354.



its particles. G. H. Kinahan, for example, in his "A Handy Book of Rock Names" (1873), says, "Thus loose sand, clay, peat, and even vegetable mould, geologically speaking, are rocks" (p. 1); and on p. 131 he includes ice among rocks.

Now this use of the term ignores the very essence of the popular idea of a rock. The term appears to be derived from the same word as *crag*, and the essential quality of a rock is firmness. The parable of the man who built his house upon a rock would need to be retranslated, and Shakespeare's "He's the rock, the oak not to be wind-shaken,"<sup>1</sup> loses its meaning if rock may be loose, drifting sand. The conventional use of the word *rock* in geology has been so widely adopted that objection to it may appear pedantic. Rosenbusch,<sup>2</sup> however, has defined "Rocks as the geologically independent constituents, of more or less constant chemical and mineralogical composition, of which the firm ('feste') crust of our earth is built." Hence such definitions as that in my "Structural Geography" (p. 21) of rocks as the firm coherent masses which form the main part of the lithosphere may shelter behind the high authority of Rosenbusch.

Reference to the paradox of calling clay and sand rocks reminds me that the word *clay* is now used in two very different senses in two sections of geology. In mineralogy the clays are a group of mineral species which are hydrous silicates of alumina. To the merchant, the farmer, and the economic geologist the essential quality of clay depends on texture and not on chemical composition. The word *clay* appears to be based on the same root as *clog* and *cleave*, while the Russian *glin* and the Greek *γλίνα* connect it with glue and glutin. The root of the word clearly refers to the adhesiveness which clay owes to its plasticity.

The essential property of clay is that it becomes plastic when wet. In England this property is chiefly found in material, which, being formed from decomposed felspars, is a hydrous silicate of alumina; but other common materials have the same property, if ground to the requisite fineness. Quartz flour is a common clay-forming material in many parts of the world, and much of the material called clay by the farmer is pure silica. Hence the definition of economic and agricultural geologists that clay is earthy material, which is plastic when wet, its particles being no more than 0.05 mm. in diameter, is a more common-sense definition than any based on chemical composition.<sup>3</sup>

If a name be wanted to distinguish clays which are silicate of alumina from clays of different composition, then a new name should be invented, instead of adopting a definition which refuses to accept as clay the slime of the quartz miner, much of the Scottish boulder clay, and any one of the nine brick-clays in the table of brick-clay analyses given by Ries.<sup>4</sup>

I have referred to a few instances to illustrate the frequent misappropriation of current terms by various branches of science, in the hope that the members of the corresponding societies will use their influence to discourage this practice. It should be remembered, however, that there are many cases in which it is a wise policy to transform a current popular term. It may be even justifi-

able, as in the case of *minium* and *cinnabar*, to use a word with the very opposite of its original meaning. A term may be adopted and redefined where, as in the cases of fish and worm, the popular meaning involves a wrong idea, which it is advisable to correct, or overlooks a distinction which is practically important. Change and growth in nomenclature must be allowed. A dead language is very good for fixed ideas; but rigid adherence to original meanings is a bondage from which it is to be hoped scientific terminology will be always free. It is useless to suggest rules as to when popular terms may be revised; each case should be judged on its merits.

The casual adoption of current words with new meanings is often an attempt to secure specious simplicity at the price of subsequent confusion. Deissmann's recent book, "Light from the Ancient East" (1910), calls attention to the misconceptions that have similarly arisen in theology, for he urges that words used in the New Testament are now understood, in what the authors of that volume would decidedly call a non-natural sense. The idea that science is being driven into an intellectual wilderness owing to its technical terminology is an idle bogie. Reference to the sporting or business columns of any daily paper will show that all specialised pursuits have their own special language. The language of golf is as technical as that of geology, and I venture to urge that science will lose more by the misuse of current English, than by the invention of new terms for new ideas and new materials. A rose by any other name may smell as sweet, but we cannot get sweet-smelling roses if we order them under the name of dandelions. In short, to put new meanings into standard English words appears as unjustifiable as to put home-brewed beer into Bass-labelled bottles.

## HISTORY AND CURRENT EVENTS.

News which has recently reached us from the United States of America sets us in England thinking about our past history. The President has "vetoed" a Bill passed by Congress for admitting the "territories" of Arizona and New Mexico to the number of States. The land which forms these territories was acquired by the United States at the cost of the Mexican Republic in the forties and fifties of last century, and the history of those events may be known to some in this country by their study of "the Biglow papers" of J. Russell Lowell. Now the inhabitants have so far become "American" that they seek admission to the full privilege of the Union. Congress has acceded to their wish; but the fathers of the American Constitution, making a "king" like George III., with modifications, gave him a share in legislation—a suspensive veto, something like that which we have recently devised for our irremovable branch of the legislature. The American President, being "the elect of the people" as much as the two Houses of Congress, uses his powers freely, and refuses his assent to many Bills. It is therefore not "unconstitutional" for him thus to refuse State privileges to the inhabitants of these former possessions of Spain until he is satisfied with the conditions of the entry.

THE conditions of which the President disapproves are the clauses in the Constitution of Arizona which make the judges, as well as other elected officers, dependent for their terms of office on the will of the sovereign people. How proud we are as we read in the Act of Settlement that henceforth judges are to hold office no longer at the will of the Sovereign, but *quamdiu se bene gesserint*! How

<sup>1</sup> Coriolanus, v. 2, 117. Cf. also Zangwill—"Feeling solid-based upon eternal rock."

<sup>2</sup> H. Rosenbusch, "Elemente der Gesteinslehre," Stuttgart, 1910, third edition, p. 1.

<sup>3</sup> Ries's definition—"Clay is the term applied to those earthy materials occurring in nature whose most prominent property is that of plasticity when wet" (H. Ries, "Clays: Their Occurrence, Properties, and Uses, with especial reference to those of the United States," 1906, p. 1)—is an example of those based on texture and not on composition.

<sup>4</sup> H. Reis, *ibid.*, p. 185.

ignorant we are of the date when that became fully true, and a new king could not appoint whom he would as judges at the beginning of his reign! What would Aristotle have said on the matter? He divided States into six divisions, according as they were ruled by one, "the few," or "the many," and as these were conducted for the general good or for a class. When "the many" ruled he called the State either a *πολιτεία* (an untranslatable word) or a democracy, the latter word being with him the name of a selfish rule of "the many." Would Arizona under her proposed condition be regarded by him as a "democracy"? Is the President of that opinion?

THE signature by Mr. Knox and Mr. Bryce of the Anglo-American General Arbitration Treaty last August was "witnessed," say the newspapers, "by a score of newspaper correspondents and recorded by several photographers." Some historians have solved the vexed problem of the line of division between ancient and modern history by making a distinction between those periods in which their task is to interpret a few documents, generally narrative in character, and those in which their task is one of selection and comparison of many documents of all kinds. Nay, if we go far enough back, it is a question merely of rubbish heaps and records, mainly unconscious and always without language. But the historian of the future will make a new division. His "most modern" period will be that of visual records, and unless photographs lie—and there are some who say they do—there will be no doubt in the future as to certain critical moments. We have seen a photograph of the fall of the Campanile of Venice, taken by a young lady who was fortunate enough to be snapshotting it at the moment.

WHAT and where is Meroz? What connection has it with Deborah? and what was her "spirit"? In asking these questions, we have used some knowledge. Meroz is evidently a thing, not a person; Deborah is a woman. Did the readers of newspapers who last August read these words in Lord Hugh Cecil's letter know anything more? We have since the seventeenth century abandoned the habit of quoting from the Hebrew Scriptures, as we have since the eighteenth abandoned that of quoting from the Latin and Greek writers, in our political speeches. As the House of Commons has become more "democratic," the public-school men have ceased to fall back on their youthful remembrances, and the Hebrew writings seem to have fallen on a similar neglect. Yet so Bible-trained are the English people that in times of great excitement such as we have lived through this last summer, we can find no language stronger than the utterances of those fierce old times. "The constitution is at stake" as in the seventeenth century, and instinctively, like our forefathers of both parties in Stuart times, we fall back on the classic which is common to all Englishmen.

## ITEMS OF INTEREST.

### GENERAL.

REFERENCE is made by our Welsh correspondent to the "strike" of elementary-school boys at Llanelly on September 5th. During the succeeding fortnight similar outbreaks took place in London and in various large provincial towns. The prominence given to the matter—in itself of trifling local importance—in a certain section of the daily Press, with the publication of pictures of the unruly truants, is sufficient to explain the whole of the occurrences. A rainy day was enough to adjust the outbreak in London, and in other districts the jurisdiction of the

schoolmaster has proved equal to the emergency. We suspect that, like their elders, the schoolboys have suffered from the extreme heat of this summer. But we deprecate very strongly the publicity and exaggerated importance a few newspapers have given to what was merely schoolboy foolishness.

THE subject of simplified spelling has been discussed by a conference of delegates representing the English Simplified Spelling Society and the Simplified Spelling Board of America. The English delegates were Mr. William Archer (who acted as secretary), Dr. E. R. Edwards, Prof. Jevons, Mr. Daniel Jones, Prof. Gilbert Murray, and Prof. Rippmann; the American delegates were Prof. Bright, Prof. Grandgent, Prof. Hempl, Prof. Brander Matthews, and Prof. Calvin Thomas. The purpose of the conference was to discuss a comprehensive scheme which had been prepared by Mr. Archer and Prof. Rippmann. The general principles underlying it were stated by the latter in articles contributed to the March and April issues of *THE SCHOOL WORLD*, since reprinted in pamphlet form, and issued gratis on application to the Secretary of the Simplified Spelling Society (44, Great Russell Street, London, W.C.).

THE American method of propaganda has been one of piecemeal reform. A list of 300 words was issued first; it is the list that attracted attention because of the support given to it by President Roosevelt. Two further lists have been published. The changes proposed in these lists do not go far; their adoption in elementary education would lead to little economy of time. No real saving can be effected unless an attempt is made to deal with the representation of the long vowels and diphthongs. From this very difficult problem the Simplified Spelling Board of America has hitherto recoiled. In England a propaganda which does not deal with the problem of simplified spelling in its entirety is doomed to failure. Englishmen are unwilling to contemplate any change in the appearance of the written and printed language unless a great and permanent advantage is to result. If the children of coming generations can be saved the uneducational memorising which our present spelling necessitates, if they can be supplied with a spelling in which the sounds are simply and consistently represented, the Englishman may consent to make what will undoubtedly be felt as a sacrifice during the period of transition. In doing so, he will have also the encouraging and inspiring conviction that he is removing the chief obstacle to the adoption of English as the generally accepted language of international communication.

At a preliminary meeting, representative of all branches of secondary-school teachers, held in Leeds on July 8th, on the invitation of the Association of Headmasters, it was decided to form a committee to promote a joint meeting of secondary-school teachers in the counties of Northumberland, Durham, and Yorkshire, to be held at Leeds University on October 21st at 3 p.m. The object of the meeting is to bring together teachers belonging to the different branches of the profession in order to prepare the way for closer association and, by a united expression of opinion, to direct public attention to the immediate needs of secondary education. The meeting has the support of the headmasters and headmistresses of many of the chief schools within the area. Among the speakers will be the Bishop of Ripon, Prof. Smithells, F.R.S., Dr. Hadow, Dr. Sophie Bryant, Miss Lees, Dr. Forsyth, Dr. J. D. McClure, Mr. T. E. Page, and Mr. A. A. Somerville. The following resolutions will be moved: (i) That

the co-ordination of schools under the Board of Education should be carried out in such a way as to preserve the individuality and reasonable freedom of the schools. (ii) That this meeting welcomes the announcement made last June by the President of the Board of Education as to the formation of a Teachers' Council, and believes that an adequate system of registration is of national importance. (iii) That it is essential, in the interests of schools and teachers alike, that a scheme should be devised to secure a system of superannuation in secondary schools.

THE inaugural meeting of the Association of Teachers of Mathematics from the south-eastern part of England will be held at Tonbridge early in November, when an address will be given by Dr. A. N. Whitehead, F.R.S., the president of the association. The meeting will be open to all who are interested in the teaching of mathematics. For full particulars apply to the honorary secretary of the association, Tonbridge School, Kent.

THE first part, dealing with educational statistics, of "Statistics of Public Education in England and Wales, 1909-10," has now been issued by the Board of Education (C.d. 5843). The principal new features in the volume are to be found in the sections relating to secondary schools and to pupil-teachers and bursars. The most important addition is a table containing material that should help to indicate the practical outcome of State-aided secondary education by showing the next stage in life of 43,000 boys and girls who left the secondary schools on the Board's Grant List in the year ending July 31st, 1909. This table gives particulars as to the number of pupils who proceeded to places of whole-time further education; the number who entered one or other of the usual avenues to the teaching profession; and the number who at various ages entered upon occupations of one or other of three broadly defined types. The table will prove useful to those who are concerned with the important problems relating to juvenile employment.

THE volume shows that during the school year 1909-10 there were 841 secondary schools on the Board's grant list, and of these 352 were for boys, 292 for girls, and the rest were co-education schools. There were employed in these schools 8,825 teachers—4,514 men and 4,311 women. In these schools 141,149 pupils were taught. Of 76,699 boys, 19,632 were under twelve years of age, 52,121 were twelve and under sixteen years of age, 4,626 were sixteen and under eighteen, and 320 were eighteen years and over. Of 64,450 girls, 15,269 were under twelve years of age, 41,557 were twelve and under sixteen years of age, 6,907 were sixteen and under eighteen years of age, and 657 were eighteen years of age and over. In the schools 8,825 teachers were at work, of whom 4,685 were graduates. Of the graduates, 661 had been trained for secondary-school teachers; 1,268 had been trained otherwise. Of the 4,140 non-graduate teachers, 2,076 had received no sort of professional training.

THE North British Academy of Arts, with the object of beautifying the home and inculcating a love of nature in school children, instituted two years ago a pot-plant and window-gardening competition among the poorest of the poor in Newcastle and Tyneside generally. The academy encourages the children by suitable prizes; and so successful has the scheme proved that nearly 4,000 child gardeners competed this year for the prizes offered. The academy proudly points out that by this means flowering plants have been introduced into nearly 4,000 lowly homes, and the study of nature at first hand begun by this large number

of children. Exhibitions of these plants were held on September 1st last in various schools in Newcastle-upon-Tyne and the neighbourhood. The movement deserves every encouragement. Another piece of good work is being done by the academy. Finding that some very poor boys and girls desiring to attend evening classes could not pay the few shillings' fee it is customary to charge, the academy has decided to pay for them the necessary fees, so that they may not be deprived of the opportunities enjoyed by better situated children. All applications should be addressed to the Educational Section of the North British Academy of Arts, Claremont Buildings, Newcastle-upon-Tyne.

A MAP showing the free educational institutions of the City of New York has been prepared under the direction of the president and the Department of Public Education of the American Museum of Natural History, with the co-operation of the Board of Education and the New York Public Library. It is designed to show in its broadest sense the entire free educational system of the City of New York. The public schools and branch libraries are shown as of 1910. A second edition is in preparation for 1912, in which the location of the schools and libraries will be brought up to date. The map is issued in two forms: on heavy paper for framing, 50 cents each, and on thin paper for reference and study, 40 cents each. The following institutions have joined in the expense of publishing the map: American Geographical Society, American Museum of Natural History, Brooklyn Institute of Arts and Sciences, Hispanic Society of America, Metropolitan Museum of Art, New York Botanical Garden, New York Public Library, and New York Zoological Society. These institutions will distribute the map among the various educational institutions of New York. Maps may now be had on application to Mr. George H. Sherwood, Curator, Department of Public Education, the American Museum of Natural History, New York City, or to officers of any of the institutions above named.

At the recent meeting of the British Association a discussion took place on ventilation in confined quarters. In an introductory address Mr. Leonard Hill, F.R.S., said too much importance has been paid to the chemical purity of the air and not enough to the temperature. It is most necessary to maintain the coolness and movement of the air, for this promotes the activity of the body, and by stimulating the cutaneous nerves keeps up the tone of the body. The activity of men engaged in sedentary indoor occupations depends very largely on the temperature and humidity of the air. If the air is over-warm, windless, and moist, we are slack, and losing less, we produce less heat. So we come to eating less and breathing less. The organs of the body then have a more restricted choice of building stones from which to elaborate the blood, and the blood moves in more sluggish streams through the outlying territories of our bodily world. Thus our first line of defence is weakened. If the air is cool and moving we are braced up and are active, eat more, and breathe more. The blood is refined out of a large choice of food-stuffs, and the organs receive an ampler supply of the rarer and more precious of the chemical complexes—the building stones into which the digestive juices break down the foods. More oxygen is taken in, the daily turnover of the body factory is enlarged, and the blood which barter the rich merchandise of the organs one with another moves in ampler and quicker streams. Mr. Hill visited recently the Leo Road London County Council School, where every room is swept with a gentle current of air at 57° to 60° F.

by a plenum system. The headmaster told him the lost attendances from infectious diseases were fewer than 1,000 per year, while in other schools they reach 10,000 and more. The rooms felt cool and pleasant, and the children and masters appeared fresh at 4 p.m. The parents say the children eat more when they come to school.

THE new number of *Science Progress* more than maintains the high standard of former issues and contains the usual variety of articles. Perhaps that of Prof. W. H. Bragg on radio-activity will most appeal to the science master—a clear statement of recent progress being a distinct desideratum. According to this article the fundamental ideas are (a) the disintegration of the atom; (b) the existence of the electron; (c) the penetrability of matter to an extent not realised previously. A very lucid and readable account is given of Rutherford's work on the splitting off of a helium atom from the atom of a radio-active substance, whilst the evidence as to the penetrability of matter is put forward in an equally attractive style. The final conclusion, that relative speed and enough of it is all that is wanted to make penetration possible to the last degree, marks a great departure from the older doctrines.

MANY readers will be glad to know that *The Educational Review* of Columbia University, New York, may be ordered through Messrs. P. S. King and Son, 2 and 4, Great Smith Street, Westminster, London, S.W. Complete sets, unbound, of the *Review* (January, 1891, to May, 1911) are available, as well as copies of a complete analytical index to the first twenty-five volumes (January, 1891, to May, 1903).

#### SCOTTISH.

AT the opening of a new school in Craigton, Govan, the Rev. Dr. Smith referred to the minute recently issued by the Scotch Education Department on the distribution of the Education (Scotland) Fund. He said that it was notorious that the present scheme of distribution failed to carry out either the letter or the spirit of the Act of Parliament. Lord Pentland and the Department had already admitted as much, and promised that when the scheme for this year came to be prepared adjustments would be made to meet the position of objectors. On receiving this assurance, the Parliamentary opposition, which was both strong and determined last session, was withdrawn. Now, however, it was found that last year's scheme had been issued unchanged on the ground of the unexpected shrinkage in the Education Fund. This shrinkage had proved a perfect windfall to the Department. It had provided them with an excuse for withdrawing the superannuation scheme, the minute for the reduction in the size of classes, and now for withholding the promised revised scheme of allocation. He characterised the action of the Department as tantamount to a breach of faith with education authorities. Nothing remained for them now but an organised and determined opposition in order to prevent the scheme of distribution as laid down in the minute from becoming operative.

THE Marquis of Tullibardine, M.P., in opening a new wing to the McLaren High School, Callander, said that the building was erected by public subscription to perpetuate the memory of one of Callander's most trusted and public-spirited leaders, Mr. Baillie-Hamilton, for many years chairman of the school governors. Under his fostering care the school, though but poorly endowed, had made

a name for itself all over the country, and the present addition was urgently needed to house the increasing members in attendance and to meet the enlarged requirements of present-day higher education. Dr. Andrew, late H.M. Chief Inspector of Schools, in the course of an address said that it was sometimes stated that everything was so completely managed by the Education Department that there was no further need for School Boards. As one who had spent his life in the services of the Department, he entirely dissented from that view, and said that there was nothing more to be deprecated than that the business of education should fall into the hands of a bureaucracy. There was nothing more desirable than a healthy local interest in education, and he trusted parents would always insist on having a large share in determining the character of the education to be given in their schools. He deplored the tendency to centralise all higher education in the large cities, and regretted that parishes were no longer able to equip a satisfactory secondary school. As a consequence, boys and girls were compelled to leave home at twelve or thirteen years of age, a big and a dangerous price to pay for the advantages of secondary education. Dr. Andrew also attacked the bursary system, and said that the people of Scotland were absolutely gorged with bursaries. He protested against the tendency to over-regularise and systematise their education, and pleaded for more freedom and elbow-room in their schools. All these are admirable sentiments which have frequently found place in these columns, but it is truly amazing to get them from an ex-chief inspector. Is Saul also among the prophets? and why is it only at the end of the day that he joins their ranks? We regret to find from the account in the public Press that the headmaster of the school does not seem to have been called upon to play any part in the proceedings—surely a strange omission in a country that owes so much to its schoolmasters as Scotland!

ST. ANDREWS PROVINCIAL COMMITTEE has had under consideration the present position of the Education (Scotland) Fund, and at its last meeting decided to represent to the Scotch Education Department that the present sources available for the maintenance of the Education Fund, from their fluctuating and uncertain character, are insufficient to provide the necessary expenditure required to maintain the efficiency of Scottish education and to meet the additional charges imposed by the Education Act of 1908. As a remedy it is suggested that a much larger proportion of the cost of education should be met out of national funds, and the St. Andrews committee invites the other provincial committees to join in making representations to, and in bringing pressure to bear upon, the Treasury to secure such additional funds.

A MINUTE of the Council of Education in Scotland has been issued providing for the election of new provincial committees for the training of teachers, and making several changes in their constitution. The most important alteration is the substitution in every case of the secondary education committees for the School Boards as the nominating bodies. This change seems quite uncalled for at this stage, and is bound to exasperate further School Boards, which already are in a state of chronic rebellion against departmental bureaucracy. The explanation of the present policy is declared to be that the Department, having failed to give the *coup de grâce* to School Boards by the 1908 Act, is determined to reduce them to a condition of impotency by minute. When Parliament reassembles in

the autumn Sir John Struthers may find that School Boards are not such a weak folk as he imagined, and before the question is finally settled he may have reason to regret his contemptuous treatment of the only popularly elected body dealing with education.

THE celebration of the 500th anniversary of the founding of St. Andrews University was carried through with a pomp and glorious circumstance that made "the old grey city by the northern sea" the centre of public interest for a whole week. The whole nation has felt the spell and glamour of the occasion, and dull indeed would he be of soul who could at such a time as this be cold and unmoved. For round the University, cathedral, and castle of this retired city many of the most stirring incidents in our national history have had their setting. Here Wallace and Bruce peered over the battlements of its castle, Dunbar and Gavin Douglas and Sir David Lindsay walked in the quiet cloisters of its abbey, Knox and Melville thundered from its pulpit, and the great Buchanan guided the destinies of its colleges. The various functions, which followed one another in bewildering succession, were splendidly stage-managed, and not a single hitch marred the week's proceedings. From the spectacular point of view pride of place must be given to the procession of the delegates and representatives through the streets from the University to the parish church. In the brilliant sunshine the gorgeous vestments were seen to full advantage, and the whole street seemed a blaze of clashing crimsons, golds, greens, and purples.

THE address of the Chancellor, Lord Balfour of Burleigh, in welcoming the delegates and representatives of home and foreign universities and other learned societies, was worthy of a great occasion. After a comprehensive sketch of the rise and growth of the University, he proceeded to consider how far the old ideal of the function of a university was suited to modern needs. The ideal consistently set forth by the founders of the old universities was that they were to serve as centres and schools of culture, where all who sought entrance to the learned professions would receive adequate preparation, and also that they were to be specialised schools for professional study. This ideal was still the best they could keep before them; but the times demanded a complete reorganisation and remodelling of the old *studium generale*. In conclusion, he said that the main business of a university is to train those who are to serve the State. Now more than ever, in the presence of the great and sometimes blind forces of democracy, we need what Pope Benedict in his Bull founding the University called *viros consilii maturitate conspicuos*, men of calm and ripe judgment accustomed to the methods of accurate and balanced thought. This the universities, with their rich and many-sided intellectual provisions, their long traditions, and the inspiration flowing from these traditions, are ideally fitted to supply.

THE proceedings at St. Andrews were brought to a close by the delivery of an address by Lord Rosebery, the Lord Rector of the University. In the vast auditorium, specially erected for the celebrations, was gathered together an audience of more than 3,500, comprising many of the most distinguished men of the country, as well as the most eminent representatives of learning from the ends of the earth. Lord Rosebery, assuming for the time the form of the first Lord Rector, whom through the centuries he represented as watching the course of events in the nation and in the University, an immortal like the Struldbrugs

of Swift's imagination, painted in words of thrilling eloquence the ebbs and flows of national progress and the vicissitudes and storms of national life. This first Rector is somewhat more of an optimist than his latest successor, for his concluding words were: "Be of good cheer. You have gained enormously during my long recollection—much in freedom, much in prosperity, much in the admiration of mankind." The real Lord Rector, reappearing at the close, declared that we are in danger of becoming a spoon-fed race, and of losing the spirit of independence and self-reliance that have built up the nation.

### IRISH.

THE following is a summary of the results of the Intermediate examinations held last June:

| Boys.                |        |        |        |             |       |
|----------------------|--------|--------|--------|-------------|-------|
| Grade                | Senior | Middle | Junior | Preparatory | Total |
| Number Examined...   | 602    | 1,677  | 3,005  | 2,679       | 7,963 |
| Number who passed—   |        |        |        |             |       |
| With Honours ...     | 185    | 243    | 382    | —           | 810   |
| Without Honours ...  | 225    | 686    | 1,109  | 1,460       | 3,480 |
| Total ...            | 410    | 929    | 1,491  | 1,460       | 4,290 |
| Proportion per cent. |        |        |        |             |       |
| of passes ...        | 68.1   | 55.4   | 49.6   | 54.5        | 53.9  |

| Girls.               |      |      |       |       |       |
|----------------------|------|------|-------|-------|-------|
| Number Examined ...  | 318  | 935  | 1,667 | 1,222 | 4,142 |
| Number who passed—   |      |      |       |       |       |
| With Honours ...     | 67   | 112  | 165   | —     | 344   |
| Without Honours ...  | 149  | 451  | 578   | 764   | 1,942 |
| Total ...            | 216  | 563  | 743   | 764   | 2,286 |
| Proportion per cent. |      |      |       |       |       |
| of passes ...        | 67.9 | 60.2 | 44.6  | 62.5  | 55.2  |

Once again the percentage of passes is very low, that in the junior grade girls being the most conspicuous. The result differs very little from last year, the percentage figures for the whole examination being this year a mere fraction higher. There seems little likelihood of the standard being reduced to the level at which the percentage of passes would be at least 70. There are some definite changes in the arrangements of passing for next year, but it remains to be seen whether they will affect this percentage.

THE following is an analysis of the award of prizes and exhibitions:

| Boys.                  |     |          |              |                 |             |              |     |    |     |    |
|------------------------|-----|----------|--------------|-----------------|-------------|--------------|-----|----|-----|----|
| Mod. Languages         |     |          |              |                 |             |              |     |    |     |    |
|                        |     | Classics | (with Irish) | (without Irish) | Mathematics | Exp. Science |     |    |     |    |
| Senior Grade—          |     |          |              |                 |             |              |     |    |     |    |
| Exhibitions, 1st class | ... | 4        | ...          | 2               | ...         | 1            | ... | 4  | ... | 5  |
| Exhibitions, 2nd       | ... | 6        | ...          | 3               | ...         | 3            | ... | 6  | ... | 6  |
| Prizes, £3             | ... | 4        | ...          | 4               | ...         | 3            | ... | 6  | ... | 14 |
| Prizes, £2             | ... | 2        | ...          | 3               | ...         | 3            | ... | 1  | ... | 8  |
| Prizes, £1             | ... | 2        | ...          | —               | ...         | 2            | ... | 4  | ... | 4  |
| Middle Grade—          |     |          |              |                 |             |              |     |    |     |    |
| Exhibitions, 1st class | ... | 6        | ...          | 3               | ...         | 3            | ... | 6  | ... | 6  |
| Exhibitions, 2nd       | ... | 8        | ...          | 4               | ...         | 4            | ... | 8  | ... | 8  |
| Prizes, £3             | ... | 2        | ...          | 16              | ...         | 1            | ... | 12 | ... | 10 |
| Prizes, £2             | ... | 1        | ...          | 7               | ...         | 3            | ... | 7  | ... | 9  |
| Prizes, £1             | ... | 3        | ...          | 5               | ...         | 1            | ... | 3  | ... | 2  |
| Junior Grade—          |     |          |              |                 |             |              |     |    |     |    |
| Exhibitions, 1st class | ... | 10       | ...          | 5               | ...         | 5            | ... | 10 | ... | 10 |
| Exhibitions, 2nd       | ... | 14       | ...          | 8               | ...         | 7            | ... | 14 | ... | 14 |
| Prizes, £3             | ... | 8        | ...          | 51              | ...         | 7            | ... | 16 | ... | 21 |
| Prizes, £2             | ... | 7        | ...          | 17              | ...         | 4            | ... | 6  | ... | 10 |
| Prizes, £1             | ... | 3        | ...          | 8               | ...         | 1            | ... | 7  | ... | 3  |
| Total Exhibitions      | ... | 48       | ...          | 25              | ...         | 23           | ... | 48 | ... | 49 |
| Total Prizes           | ... | 32       | ...          | 111             | ...         | 25           | ... | 62 | ... | 81 |

## Girls.

|                        |     |          | Mod. Languages  |                    |     |                  |     |                 |
|------------------------|-----|----------|-----------------|--------------------|-----|------------------|-----|-----------------|
|                        |     | Classics | (with<br>Irish) | (without<br>Irish) |     | Mathe-<br>matics |     | Exp.<br>Science |
| Senior Grade—          |     |          |                 |                    |     |                  |     |                 |
| Exhibitions, 1st class | ... | —        | ...             | 4                  | ... | 4                | ..  | —               |
| Exhibitions, 2nd       | ... | —        | ...             | 6                  | ... | 4                | ... | 4               |
| Prizes, £3             | ... | ...      | 1               | ...                | 1   | 2                | ... | —               |
| Prizes, £2             | ... | ...      | —               | 4                  | ... | 3                | ... | —               |
| Prizes, £1             | ... | ...      | —               | ...                | ... | 5                | ... | 1               |
|                        | ... | ...      | —               | ...                | ... | 5                | ... | 2               |
| Middle Grade—          |     |          |                 |                    |     |                  |     |                 |
| Exhibitions, 1st class | ... | —        | ...             | 5                  | ... | 5                | ... | 3               |
| Exhibitions, 2nd       | ... | —        | ...             | 12                 | ... | 8                | ... | 1               |
| Prizes, £3             | ... | ...      | —               | 2                  | ... | 4                | ... | 2               |
| Prizes, £2             | ... | ...      | —               | 4                  | ... | 4                | ... | 1               |
| Prizes, £1             | ... | ...      | —               | —                  | ... | 1                | ... | 2               |
|                        | ... | ...      | —               | ...                | ... | 1                | ... | 3               |
| Junior Grade—          |     |          |                 |                    |     |                  |     |                 |
| Exhibitions, 1st class | ... | —        | ..              | 7                  | ..  | 6                | ... | 6               |
| Exhibitions, 2nd       | ... | —        | ...             | 14                 | ... | 11               | ... | 6               |
| Prizes, £3             | ... | ...      | —               | 8                  | ... | 5                | ... | 5               |
| Prizes, £2             | ... | ...      | —               | 10                 | ... | 5                | ... | 2               |
| Prizes, £1             | ... | ...      | —               | 15                 | ... | 2                | ... | 1               |
| Total Exhibitions      | ... | 0        | ...             | 48                 | ... | 38               | ... | 20              |
| Total Prizes           | ... | 1        | ...             | 34                 | ... | 31               | ... | 14              |

DR. STARKIE has delivered an interesting address to the Royal Institute of Public Health on "School Hygiene." It was in 1900 that the National Board first recognised the importance of hygiene in the primary schools, and although the progress has not been so rapid as in England, where money is provided more lavishly, yet it may be said without exaggeration that there has been a revolution in the majority of schools in the conceptions of the importance of a high standard of cleanliness in the education of the young. On the other hand, in the absence of funds, no provision has been possible for the medical inspection of children, especially in the matter of eyesight, hearing, and teeth; but this is a duty which cannot long be postponed. For the *mens sana* the State provides about £3 per annum per head; for the *corpus sanum* nothing. The school buildings in Ireland have been improved greatly in recent years, although owing to delay on the part of the Treasury in providing the money there are still many that are hardly fit for use and should be rebuilt.

UNDER the auspices of the Association of Manual Training and Technical Teachers in Ireland, Sir John A. Cockburn delivered a lecture in the Royal College of Science last month on "Manual Training." His views were revolutionary. He regarded manual training as essential for all education, not merely as the foundation of technical education, but also essential as a basis for the teaching of science. Owing to the enormous development of modern civilisation and the intense organisation of the age, it was more and more necessary to teach children their relationship with their fellow-men and their duties to their fellows. There was nothing to bring the individuals into relationship with their fellow-men and the actual world around them so good as the hand, and further, as the mind was only to be reached through the body, the training of the hand, the most useful member of the body for this purpose, became all-important. He believed that from this point of view a more natural and more effective education could be built up.

## WELSH.

LLANELLY seems to have been the town to set the fashion amongst boys of a "strike" from school. It seems to have begun at one of the Llanelly schools when the scholars, in sympathy with a schoolmate punished for an offence, deserted their class-rooms and paraded the streets

to the accompaniment of singing. Later in the day the boys returned; but the "epidemic" spread to other schools, where the grounds were given out as objection to "too much punishment," the changing of the hours from 9 to 12, as formerly, to 9.15 to 12.15, by which alteration, the boys say, they lose play during the dinner interval. The demand is made, after the manner of their seniors, that other boys not only in the same school, but in other schools, shall join those disaffected, or else be subjected to considerable inconvenience. These cases have given excellent examples of the power of suggestion, and also show that our system of free education does not preclude the view being taken that benevolent gifts may be just as much the subject of contention, and even of attempted constraint of others, as questions of paid labour.

WALES has certainly had quite its share in the way of protest against equality of treatment of teachers. Thus another case has arisen of an education authority refusing to accept a recommendation of the staff committee that a trained certificated teacher be appointed to a certain school at a salary "according to the scale of teachers in the Council's service." The school is the Dowlais Roman Catholic School; the authority is Merthyr. By twelve votes to nine it was decided to give only a reduced salary. But what becomes of the principle that employers should not inquire into the religious opinions of those serving under them?

DR. REMMETT WEAVER has made his report on the year's working of the Abertillery School Clinic, the first of the kind established in Wales. The part of the council offices formerly allotted as a dwelling-house to the late surveyor has been adapted for the clinic. Accommodation is thus provided for the medical officer, the sanitary inspector and clerk, the nurse, and there are a clinic room, a clinic eye-room, and a laboratory. The clinic is open two afternoons a week and on Saturday mornings. Cases are referred to the clinic by teachers and attendance officers with regard to fitness for school work, and medical inspectors make special examinations as to special defects. The number of children sent to the clinic by head teachers and attendance officers was 110; the number examined or treated as a result of medical inspection was 228. A charge is made for treatment, but not for examination; and in this latter category is included estimation of refraction for the prescription of spectacles. The charges are 1s. for the first month's treatment of a child and 6d. for each month afterwards. Exceptions are made in necessitous cases. The initial expense, including adaptation of the rooms and contribution to the laboratory, came to £110.

AMONGST the advantages claimed by Dr. Weaver for the clinic are: (i) The more complete examination of children than is possible in routine school medical inspection. (ii) Every defective child can and should receive treatment in spite of poor circumstances and apathy of parents. (iii) Prompter treatment and earlier return to school; school work under better conditions, in cases of inspection and treatment. (v) All excuse is taken away from parents of neglecting to have curable defects in their children treated. Dr. Weaver also maintains that private medical practitioners gain rather than lose by the establishment of the clinic. The Abertillery clinic, unfortunately, does not include dental treatment as yet, and operations for tonsils and adenoids have to be left to private medical practitioners or to distant hospitals.

New schools have been opened at Cwm, under the Ebbw Vale Education Authority. They stand on about two acres of ground, and consist of three departments, boys, girls, and infants, and have total accommodation for 960. At the opening it was urged that the time had come for instruction in mining to be included in the syllabus of each school in the district. It was not stated, but we presume this was for the boys' school, and not regarded as essential for girls and infants.

MR. T. RICHARDS, M.P., remarked that mining should be included, because a large proportion of the boys attending that school would undoubtedly go down the mines, and it would be well if, during the last twelve months of their training, the elementary stage of mining was taught. In commenting upon the new buildings, he said if all the schools in the country were so well lighted and ventilated it would go a long way to the prevention of that dread disease, consumption. He believed that this deadly disease was to a large extent sown in the children's early days while in badly constructed schools.

THE excellent experiment has been carried out at Bangor of holding a summer school for training in the "direct" method of teaching Latin. As Dr. E. V. Arnold explained, the central idea of the new method is that boys and girls should not be taught Latin by the old process of poring over books and learning rules of grammar, but by listening to and actually speaking the language, and, so far as possible, putting themselves into the circumstances described in the spoken words. Dr. W. H. D. Rouse was the leader of the school at Bangor, and pleaded that at least as much enthusiasm might be spared for spoken Latin as for Esperanto, and that we must not accept the idea that Latin ought to be regarded as a dead language. There were one hundred and ten teachers gathered together at Bangor to study and practise Latin teaching, and fifty-five children to practise upon. The children were divided into two classes, an elementary class and a transition class. The elementary class contained children from twelve to fourteen or fifteen years of age, and at the beginning of the course knew no Latin. The transition class contained children not much older, but who had had some Latin teaching. By the end of the course the children in the elementary class presented in the lecture hall of University College parts of "Pyramus and Thisbe" in Latin, and members of the transition class played the "Triumphus." It is highly satisfactory that such a propaganda of a method of teaching has been carried through, and that such a large body of teachers should have attended.

## THE TEACHING OF HISTORY.

*Report of a Conference on the Teaching of History in London Elementary Schools.* 72 pp. (P. S. King and Son.) 1s. net.

THIS is the fourth of the excellent reports which the London County Council has issued on the teaching of particular subjects in the schools under its control. Though, like the preceding reports on English, geography, and arithmetic, this report on history is restricted in its immediate application to one type of school in one locality, yet so much of it is of general interest and value that it deserves to be carefully studied by all teachers of history of all grades and in all places. Though it is comparatively brief, it contains in essence the practical wisdom of several of the more voluminous works on educational aim and

method as applied to history, and in the main it is written with a lucidity and literary skill that make its contents easily and pleasantly assimilable.

The committee which drew up the report consisted of twenty-six members under the able presidency of Prof. A. F. Pollard, of University College, London. One half of the committee consisted of teachers in London elementary schools; the other half was made up of lecturers in universities and training colleges, secondary-school teachers, and education officials. It was a thoroughly representative body, except that the proportion of head-teachers to class-teachers was excessive. The committee divided itself up into sections for the investigation of special aspects of the subject under consideration, and the result is a report classified into seven chapters, prefaced by a valuable introduction by the chairman. The best way of giving an idea of the scope of the report will be to take it chapter by chapter.

Chapter i. treats of "Existing Methods in England." It directs notice to the gratifying increase in the attention given to history since 1871, when it was practically untaught in elementary schools, and shows that this increase has been specially notable during the past decade under the revised code. It points out, however, that much yet remains unsatisfactory. Insufficient time is assigned to the history lessons; there is lack of continuity in the teaching; local and other aids are neglected; above all, there is an absence of unifying principle and clearly defined aim in the instruction.

Chapter ii., on "Methods in other Countries," shows that at any rate in the matters of principle and aim other countries are generally in advance of Great Britain. In all of them it is distinctly recognised that "the fundamental object of history teaching is to inculcate the doctrine of patriotism in its wider sense, both local and national." In pursuance of this aim social and economic history are given precedence over political history, while such political history as is taught tends to be subdued to the furtherance of patriotic interests—e.g., Republicanism in France, Hohenzollernism in Prussia. The chapter then proceeds to give some account in detail of the teaching of history in eleven different countries. The accounts are too scrappy to be of much service, and, apart from the illustration and enforcement of the general principles stated above, of no great interest.

Chapter iii. deals with "The Aims and Scope of History Teaching." With respect to the aims, it shows that the study of history develops a particular kind of mental power of precisely the type required in the discussion of political problems, viz., the power of reasoning from uncertain data and of judging men's thoughts and feelings through their acts. It points out, too, that it imparts information of eminent value to citizens, and further that it is the indispensable basis of intelligent patriotism. Hence it concludes that the civic aim should dominate all others. In order to achieve this aim, the scope of historical instruction should include some world history in addition to national history, and the national history (which, of course, occupies prime place) should include, besides political narrative, some treatment of one or more of the following aspects: institutional, social, economic, intellectual, civic. The chapter concludes with a series of practical suggestions for school syllabuses designed on the principles laid down.

Chapter iv. discusses "Suggestions as to Methods of Teaching History." In the infants' department, where the main object is "to create interest and cultivate intelligence," the telling of simple stories, or the describing of



the condition of "a series of conventional typical children," is recommended. For scholars between the ages of seven and ten, when the main object is "to give some notion of the story of mankind," a series of lives of representative heroes, such as Leonidas, Horatius, Regulus, Alfred the Great, Arnold von Winkelried, and Garibaldi is suggested. The order, it is urged, should be strictly chronological; the idea of historical development should be kept in mind; impressions should be deepened by dramatic representation and other devices. There is surely some ambiguity in one sentence which appears in this section (p. 41). It seems to propose that in order to "lay stress upon the time-sense and continuity of national life" a year might in special cases be devoted to the history of Egypt! For pupils between the ages of eleven and fourteen the systematic study of the history of England and the Empire is commended. The "periodic" rather than the "concentric" division of the subject is strongly advocated, and the employment of "larger histories, facsimiles, documents, and source-books" is urged in order to develop the faculty of self-help. The teaching of local history as a separate subject is condemned, but its use as a storehouse of illustrations for general history is insisted upon.

Chapter v., on "Text-books, Libraries, Illustrations, Syllabuses, and Examinations," contains many valuable suggestions. I venture to think, however, that the place assigned by the committee to text-books is too low, and that their condemnation of existing historical readers is too sweeping and severe. They give an excellent list of proposals (p. 49) for series of illustrations to show the development of such things as industries, mode of locomotion, architecture, and it is to be hoped sincerely that some enterprising publisher will undertake the task of realising the idea set forth.

Chapter vi. discusses in an interesting manner the "Relation of History to Literature, Geography, and Drawing," and endeavours to mark the limits of useful co-ordination.

Chapter vii., the last, breaks new ground in treating vigorously and well the question of the "Training of the Teacher." This chapter should provoke thought and raise controversy, for it advocates the reduction and simplification of the syllabus of subjects required from students in training colleges, and it urges that instruction in the method of teaching history should be undertaken rather by the lecturer in history than the lecturer in education. Further, it goes somewhat beyond the scope of the committee's reference by suggesting that an "intermediate test" should be instituted for students in training, in order to eliminate the unfit at the end of their first year.

This rough summary of the matters discussed in this admirable report will sufficiently demonstrate its importance. I will close my analysis by giving an extract from Prof. Pollard's fine and inspiring introduction, which indicates the high and serious purpose which has moved the members of the committee in the carrying out of their task.

"Every child in an elementary school," says Prof. Pollard, "has to be educated to fulfil two functions in life. He will have to earn a livelihood, and he will have to perform some of the duties of a citizen. Even under present conditions the girl may have in after-life to exercise a municipal vote, or serve on Boards of Guardians, County Councils, or other local authorities. Now we do not recommend the study of history as a means to a lucrative livelihood; but we do insist upon it as an indispensable element in the training of a citizen, and upon this we base our plea for efficient historical teaching and an adequate historical curriculum in elementary schools.

England is to-day a democracy, and the only preparation the vast majority of its citizens will receive for the intelligent exercise of the powers placed in their hands will be the elementary schools. In that preparation some historical education is an essential factor. What is happening to-day is the necessary result of what took place in the past; and quite as surely the decisions of those who are children now at school will determine the course of events hereafter. It is of the highest importance that they should realise their dependence upon the past and their responsibility for the future, that they should grasp the futility of attempting to deal with political questions as abstract propositions, and that they should have some means of correcting the intellectual vices induced by party spirit and sensational journalism. The study of history alone provides the background which enables us to see political issues in their due perspective."

F. J. C. HEARNshaw.

### RECENT EDUCATIONAL THEORY.

- (1) *How to Study and Teaching How to Study.* By F. M. McMurry. viii+324 pp. (Harrap.) 5s.
- (2) *Educational Values.* By W. C. Bagley. xx+267 pp. (New York: The Macmillan Company.) 5s. net.
- (3) *Craftsmanship in Teaching.* By W. C. Bagley. ix+247 pp. (New York: The Macmillan Company.) 5s. net.
- (4) *Idealism in Education.* By H. H. Horne. xxi+183 pp. (New York: The Macmillan Company.) 5s. 6d. net.
- (5) *Text-book in the Principles of Education.* By E. N. Henderson. xiv+593 pp. (New York: The Macmillan Company.) 7s. 6d.
- (6) *A Short History of Ethics.* By R. A. P. Rogers. xxii+303 pp. (Macmillan.) 3s. 6d. net.

It is a little difficult to realise for whom Prof. McMurry has put his thoughts on "How to Study" (1) into the form of a book. The message of the book might be summed up in a brief paragraph. "Read with some definiteness of aim, but not narrowly withal; distinguish between the important and the trivial, the principle from the detail; put your knowledge to use; suspend judgment until evidence is forthcoming," and so on for two or three more lines—we have then the substance of the eleven chapters that make the book. The rush and hurry of life in the States may make this sort of writing necessary, and we may on this side the water estimate indirectly the difficulties which atmosphere brings to the studious minded. It is difficult otherwise to conceive why we should read it.

Mr. Bagley has written one book which every educational student has read, "The Educative Process," and English readers will take up his later writings with friendly anticipations. His "Educational Values" (2) seems to us a worthy companion volume to that excellent account of the issues involved in educational practice. It covers some of the ground of the older book, but much more exhaustively. How far can the school be an effective training ground for conduct? That is the question which the author tries to solve, and after discussing what he calls the "controls of conduct" in general and those controls which education may provide, he passes the curriculum of the school in review—its instructional, inspirational, and disciplinary value. These chapters are excellently done. The author is clearly abreast of modern psychological research, and his book is a real contribution to the better organisation of educational doctrine. He does not appear to have been quite so successful in the

volume of miscellaneous essays (3), which appeared a few weeks earlier than the book just noticed. Mr. Bagley has thought it worth while to give permanent form to a number of occasional addresses which for the most part depend largely upon time and circumstance for their special value. They are necessarily rather slight in thought texture, and admirable, if not new, in sentiment.

There is much sound material in Prof. Horne's latest book (4). Its title suggests an abstract philosophical discussion, but instead of that we have brief but informing accounts of the biological factors in education—heredity, environment, adaptation. "My best scholar in ethics is the greatest knave of the lot," said a French schoolmaster, a remark which sums up the general position of the author. It is the best and the sanest account of the modern attitude to the educational problem in brief compass that we have read. Every busy schoolmaster who wishes to come at the larger view of his work may read it with much profit and not a little enjoyment.

A more ambitious and perhaps less readable work, by Prof. E. N. Henderson (5), also deserves the serious notice of working schoolmasters, who are apt to lose touch with the movement of thought which concerns their professional activities. Mr. Henderson writes entirely from the biological point of view—a much more fruitful position than that of the Herbartian, whose schematism threatened at one time to entrap the schools. He writes with abundance of knowledge. Could he see fit to shorten some of his chapters, he would probably win more readers. He is almost Teutonic in his desire for completeness, and even students are apt to be impatient of a text which is slow and even laboured in leading up to its points. Nevertheless, the book is a serious contribution to the literature of education, and the admirable bibliography appended to each chapter still further increases its value.

A pleasing contrast to this last book in point of clearness and directness of style, aided, too, by its superiority of type and paper, is Mr. Rogers's account of the progress of ethical thought from the Greek to the modern world (6). It will come as a shock to the educational reader, who has lost historical perspective in his study of Herbartianism, to find the name of his great master does not occur in the book! Nevertheless, within the limits the author has laid down for his work, he has succeeded in producing a sound and scholarly outline of his subject. One could, however, have wished for a chapter on Nietzsche, the Pragmatists, and other post-Spencerian movements. It is just the most modern writers who are inaccessible to the average student. For him, a short critical summary of present-day tendencies would have been extremely valuable.

### THE CLOUDS OF ARISTOPHANES.

*The Clouds of Aristophanes.* With Introduction, English Prose Translation, Critical Notes and Commentary, including a New Transcript of the Scholia in Codex Venetus Marcianus 474. By W. J. M. Starkie. lxxviii+370 pp. (Macmillan.) 12s. net.

We have to congratulate Mr. Starkie on another volume of his Aristophanes. Each new one seems to have its special points. The last had the critical introduction; this has the scholia of V. These scholia have been current hitherto in a faulty collation, and Mr. Starkie has given one which is much better, which, indeed, he claims to be for the first time correct. To decipher these crabbed notes is a difficult and ungrateful task, but necessary, and all scholars will thank him for it. The translation is of the

same style as his "Acharnians": a brilliant *tour de force* of Elizabethan English, for which Mr. Starkie gives plentiful quotations from Shakespeare and his fellows. The student of English literature may learn not a little from this book.

Mr. Starkie shows a good sense in his literary criticisms: but perhaps he has in his introduction taken Aristophanes a little too seriously. The poet's aim was to amuse: and if he exaggerated the peculiarities of Socrates, or mixed him up with the Sophists, that in itself was a humorous touch which probably amused Socrates as much as anyone. Socrates' own reference to it in the "Apology" is a bit of banter; and in the "Symposium" Plato makes them the best of friends, reflecting, no doubt, what was then the fact. Perhaps, indeed, Socrates was not an enemy of the Sophists when the "Clouds" was written (see p. xlii).

The editions of the "Clouds" are carefully discussed: no doubt this is necessary, but to the reader it does not matter much. We are glad to see that Mr. Starkie in his notes ridicules those Germans who try to assign this or that line to this or that edition, treating a comedy as if it were a treatise on philosophy or history, and refusing the least incongruity or slip (see on 500, 505). Commentators are indeed a stupid tribe: and we recommend readers to examine the appendix on 177-9 on that wretched *ἰμῆτιον*, where a happy surprise is treated with dour solemnity by too many editors.

We have marked a number of notes which show the editor's sense and skill; one or two may be mentioned. Thus, *τουνόν* (83) is regarded as mental, not physical, and the interpretation is supported by undoubted quotations. *ἀλφίτων* (106) is "the proverbial bread and cheese." In the passage on the flea, he sees a hit at *πάντων μέτρον ἄνθρωπος*; so to itself, *ψύλλα μέτρον*. In 178 *διαβήτην* means *ὥσπερ δ.*, a point often missed. Even *οὐρεῖν* (373) has a point which perhaps has not been noted before, a reference to *Zeús Oúrios*. On the other hand, we do not see a reference to bugs in *ἀκόρητος* (44); the tone of the passage is not humorous from the speaker's point of view, and the scholiasts' "unkempt" seems better. Still less likely is any play on the first syllabus of *ὑμῶν τε* and *νομίζετε* (248); this is frigid indeed, and more like Bücheler than Mr. Starkie. These are small points, however—there are a few more of them: as a whole, the edition is of first-rate importance.

### RECENT SCHOOL BOOKS AND APPARATUS.

#### Classics.

*Plato's Phaedo.* Edited, with Introduction and Notes, by John Burnet. lx+text unpagcd+158 pp. (Clarendon Press.) 5s.—This edition is unpretending, but, unless we are mistaken, it will become the standard edition for schools and colleges. It is, in fact, admirably done; and although we could desire a fuller treatment for scholars, there is enough here for most people. It is an original edition in that the editor's independence is seen on every page; and it is sensible and clear. We are especially pleased with the introduction, and the notes on the ideas. The introduction discusses the relation of Plato and Xenophon to Socrates, and shows that the Socrates of Xenophon is no more "historical" than Plato's; so much we may say is proved. Mr. Burnet goes on to show that Plato's Socrates is near to life, and that Plato was really doing his best to tell the views of Socrates when he professes to do so: this cannot be proved, but Mr. Burnet makes it probable. Both this and the ideas deserve fuller

treatment, as we implied just now, but so far as these pages go they are excellent. Mr. Burnet has done well to remind us that Plato reproduces perfectly the atmosphere of the years in which his dialogues are placed; his skill in doing this has generally been overlooked, because it is so perfect. We can heartily recommend this book in every respect.

*Caesar's Invasions of Britain.* By S. E. Winbolt. (From B.G. IV., V.) vi+88 pp.; with illustrations and vocabulary. (Bell.) 1s. 6d.

*Livy's Kings of Rome.* (The same.) x+94 pp. 1s. 6d.

*The Catiline of Sallust.* By A. J. Barnett. 80 pp.; with vocabulary. (Methuen.) 1s.

Here is another Caesar, "shortened and simplified," printed in sentences instead of paragraphs—a plan that has its advantages; but it was tried half a century ago and dropped. We do not think that minds so tender as to want this ought to read Caesar. We do not like the pictures cutting up the text. But for those who do, Mr. Winbolt has provided a satisfactory book. There are exercises: questions in Latin to be answered in Latin—to save a bad teacher the trouble of doing his part—and English sentences for translation. The "Kings of Rome" is like it in plan; but we prefer Mr. Edwards's. Methuen's series is much better got up, though less pretentious. The print is good, the lines short, and all long vowels are marked (but not hidden quantities, as *conspexit*). This edition also has a few notes, and Latin questions on each chapter.

*Classical Association: Proceedings, January, 1911.* Vol. viii. With Rules and List of Members. 266 pp. (Murray.) 2s. 6d. net.—This number is largely taken up with grammatical terminology—the report of the committee, and a debate. The committee did a great deal of hard work, but its report is only a step in the right direction. Probably no system will ever be devised that will suit all languages: the recommendations here given are many of them good, and tend to simplicity, but they are a compromise, and open to criticism, of course. Prof. Myres has a paper on "The Geographical Aspect of Greek Colonization," in which he alludes to the effect of weather and tides on the colonization, and the need for oil and corn, which often prompted it. Sir Archibald Geikie's presidential address is welcome as coming from a man of science: he deals with the ancients' love of nature, and their feelings for the mountains and the sea. Miss Case gives a paper on the theme of the Eumenides, the conflict between the Old and the New in religious ideas, reconciled by Zeus. Prof. Postgate tells "The Truth about Latin Prose," criticising views of Mr. Exon with his usual logic and pungency. He argues also for free composition and conversation in Latin and Greek.

*The Regular Latin Book.* By R. A. A. Beresford. vi+64 pp. (Blackie.) 1s. 6d.—This is an elementary grammar, with exercises, containing only "the usual forms." Thus it does not contain *filius* or *domus*, or verbs like *facio*! A startling thing, in truth, and enough to condemn the book for those who want to *use* Latin in any human way. Certain endings, with their English equivalents, are printed in red: a useful idea. The exercises are of the familiar incoherent and military type.

### English.

*The Elementary Course in English.* By J. F. Hosie. viii+150 pp. (Cambridge University Press.) 3s. net.—We have here a most interesting syllabus of the work

carried on in the elementary grades of American schools. It is an attempt to give the teacher a bibliography to every side of English teaching, first under the conventional headings of composition, word-study, grammar, reading, and literature, and then by mapping out courses for the several grades. But it is not a mere collection of bibliographies; there is a running exposition of principles to be followed, expressed sometimes, it is true, rather dogmatically, but always with sincerity and real insight. There is also an appendix which is worthy of special consideration, for it attempts to establish "a *répertoire* of classics upon which taste may gradually be formed and ideals moulded." The author's remark that "the winnowing which is now going on will ultimately determine what these inevitable selections are," seems to us to be a hopeful sign for the future of English teaching, not only in elementary but also in secondary schools. We commend the book with pleasure to all teachers of English.

*The Concise Oxford Dictionary of Current English.* Adapted by H. W. Fowler and F. E. Fowler from the Oxford Dictionary. xii+1041 pp. (Clarendon Press.) Cloth, 3s. 6d. net.—The authors of "The King's English" have accomplished a great work. They have condensed the learning of the great Oxford Dictionary into a handy form at a marvellous price. And this condensation is carried out on the same scientific lines as the larger work, with a perfectly wonderful range of illustration. The verb *plough* will serve as a fair sample of the fullness of treatment and of the method employed; we are given the primary meaning, and then *reference* is made to ploughing the sand, to producing wrinkles, to advancing laboriously through snow or book, to sailing over the sea, and even to being rejected in an examination. In fact, as a handy scholarly dictionary of current English for young students, we cannot imagine anything better.

*Literature in the Elementary School.* By P. L. MacClintock. 304 pp. (Cambridge University Press.) 4s.

*Stories to Tell to Children.* By S. C. Bryant. 251 pp. (Harrap.) 2s. 6d.

*Cuchulain.* By E. Hull. Illustrated by S. Reid. 270 pp. (Harrap.) 1s. 6d.

*The Story of the Greek People.* By E. M. Tappan. 271 pp. (Harrap.) 1s. 6d.

The titles of these books are alluring. Prof. MacClintock would have (a) the most careful choice of books, (b) the very careful study of the classics chosen. We agree: it would be better to issue an Index Expurgatorius for schools than to try to guide them too much. "King Lear," "Hamlet," and "We are Seven" might go in such an index; and nearly all Milton. But surely it is the teacher who errs; who will not know his stories, who takes unpolished stories and tells them badly. The chapters in this book dealing with the story are inadequate. Yet the book is by a child-lover. Would it be possible to get votes from 10,000 children on the subject of favourite tales and heroes?

Now Mrs. Bryant has written before on story-telling; and her second volume contains the stories themselves. It will be avidly received by lazy teachers. Yet, except for four or five, the stories are told down to children, and are as nothing in comparison with the wealth of which the writer must know. Stockton and Wilde, Baumbach and Housman, are never mentioned; writers who seem to have been born for the school-story. But Mrs. Bryant appears to have her eye on infants who are

not "children." Perhaps a publisher will give us half-a-dozen volumes of stories for the expert story-teller in schools—but where will he find the editor and how get permission to use the scattered gems?

"Cuchulain" is a beautiful book, beautifully done; and you need but read one chapter to see that the rhythm loved by the true story-teller is there. It is learning and taste dedicated to the service of the child, and when we say we put it along with Joyce we pay the highest compliment we can pay. (Wrath on p. 16 should be wroth.) The story of the Greek people is a most praiseworthy attempt to tell Greek history interestingly and to crowd it with illustrations (of varying merit).

*World Literature and its Place in General Culture.* By R. G. Moulton. 502 pp. (Macmillan.) 7s. 6d.—Dr. Moulton's "World Literature" deserves instant recognition. It directs attention to what all the books ignore and some critics deny, viz., that in literature chronology is nothing and thought is all. Chandrapal, in that arresting book "Mad Shepherds," tells us "the cycle of existence returns upon itself." It is so in literature, and those who have tried even in the simplest way the comparative method will remember the astonishment with which they, in common with their classes, realised that the book of Job, the Odyssey, the opening of the second book of Lucretius, Aucassin, the Grail, the Prelude have their blood relations in lands they never knew and in centuries they never heard of. Dr. Moulton's book is crammed with suggestive thought. The chapter on Dante and Milton alone fails, and this is not the writer's fault; it is due to Dante's never yet having met his English interpreter. It will surprise readers to find FitzGerald looming so large and Macpherson eulogised and translation so brightly defended; but none will grudge Alceste her place in the high places of the mind. Dr. Moulton looks forward to the study of literature, a study not yet dreamed of in the schools or colleges. Perhaps, when such a study comes, it will arrest the advance of that barbarous notion that literature is a high-falutin luxury of the aristocratically educated.

### History.

*A History of Architecture in London.* By W. H. Godfrey. xxiii+390 pp. (Batsford.) 7s. 6d. net. *An Historical Guide to London.* By G. R. S. Taylor. xii+345 pp. (Dent.) 6s. net.—At first sight both these books appeal to the general reader as excellent picture books, and it depends on his age and bodily activity whether they will make him content to stay at home and enjoy the architectural details in pictures or send him out on an eager search for the origins of the beautiful illustrations. But the authors, of course, have more serious aims than to provide the drawing-room with picture books. Mr. Godfrey briefly describes his book as one "arranged to illustrate the course of architecture in England until 1800 with a sketch of the preceding European styles," and this object he fulfils with an abundance of detail, as to ground plan, superstructure, and ornament, and this with reference to domestic as well as church architecture. Mr. Taylor's book is intended for the visitor to London, and is divided into three parts. In the first he sketches the history of the city down to the eighteenth century. In the second he provides fifteen itineraries, mentioning the chief objects of interest to be seen in each, not neglecting the inner suburbs. The third is a gazetteer which mentions in alphabetical order all the objects of interest, Hyde Park, the Temple, &c., including all City churches, even those now destroyed. Each book has an index, and Mr.

Godfrey provides his readers also with seven maps, marking on them the position of the buildings of which he has spoken in his text. Together these books ought to interest and instruct the Londoner, and his country cousins too, in the wealth of beauty which still remains among the more modern and prosaic buildings of our metropolis.

*Scenes from European History.* By G. B. Smith. viii+211 pp. (Edward Arnold.) 2s. 6d.—Twenty stories from European history, written to supplement the teaching of English history, and tell at greater length than is possible in the ordinary text-book, the meaning of some of the names therein mentioned. After an introduction on the Roman Empire, the stories include such names as St. Benedict, Mohammed, Louis XI., the French Revolution, and so on down to the Liberation of Italy and Bismarck. These are followed by a summary. The whole thing is exceedingly well done, and at the end of most of the chapters are mentioned novels on the period, as to which we remember Ranke's comment on Scott's "Quentin Durward," and wonder why, apropos of Luther, the "Schomberg-Gotha family" is not referred to.

*A Synopsis of the Leading Events in Modern History.* By F. R. A. Jarvis. vi+192 pp. (Philip.) 2s.—First, the matter of this book is almost entirely English history; secondly, the arrangement is strange, leading the author to treat twice over the revolt of the American colonies, and omitting entirely the reign of Georges I. and II.; thirdly, though Mr. Jarvis refers to some of the best modern histories, he does not seem to have absorbed their spirit, and his first "part" is somewhat crude. Having said this by way of caution, we can commend the book as a brief analysis in paragraphs of modern English history. There are appendices on such matters as the Constitutions of the British Empire, growth of population, the National Debt, &c., and an index.

*The British Empire and its History.* By E. G. Hawke. xiii+418 pp. (Murray.) 3s. 6d.—An excellent, readable account of the British Empire, the "books" being respectively devoted to the British Isles, the self-governing States, India, Crown Colonies, and Protectorates. The first section of each chapter is given to the physical features; then follows the general history, necessarily much shortened in those with a distant past, such as the British Isles and India; and then a clear outline is given of the present-day government of each part. Final chapters tell of the sea links of the Empire, i.e., the navy and fortified posts, and of Imperial unity. There is also a brief chronology of the Empire, but no index. Owing, however, to careful and orderly arrangement, this is perhaps not so necessary. There are maps and many other illustrations.

*The Making of England and the Empire. Part III.* 1509-1714. By M. E. Hancock. 128 pp. (Stead's Publishing House.) 4d. net.—We have noticed previously Parts I. and II. of this little book. This part is similar. It is not history, only the more picturesque or decorative incidents of the history. Some of the pictures are better than in the previous parts; but we wonder what is meant by the inscriptions on the two volumes sketched on p. 21, and why the events are given on p. 119 in the reverse order to that of time.

*School History of England.* By M. E. Carter. xxx+406 pp. (Clive.) 3s. 6d.—Here is a good history arranged in the method of the University Tutorial Press, with full index, table of contents, maps, and genealogical tables.

We have noticed only three or four matters on which the author is not quite correct, among them Morton's Fork, which still persists in the text-books in spite of Busch's explosion of it many years ago.

*The Growth of the British Empire.* By P. H. and A. C. Kerr. viii+204 pp. (Longmans.) 1s. 9d.—This book has four coloured illustrations, four coloured maps, and fifty-nine maps and other illustrations. It is a pleasantly told story of the acquisition, losses, and internal growth of the possessions of the British Crown, including the story of previous colonisers from whom we acquired some of them, and ending with a brief account of the present conditions and a moralisation on the possible future. There is no index.

*Sea Kings of Britain. Keppel to Nelson.* By G. R. Callender. viii+367 pp. (Longmans.) 3s. 6d.—This volume is the last number of a series of which we have previously reviewed the other two. Mr. Callender sustains his reputation. He is evidently an enthusiast for his subject. With abounding detail, yet without a dull line, he tells the story of the British Navy during sixty years under the titles of six famous admirals. But others are more than mentioned, and besides an account of the fights and campaigns there are endless incidents told which reveal the human character of the story. There are, of course, sufficient maps and plans for the understanding of the story, and there is a very full index.

*Liberalism.* By L. T. Hobhouse. 254 pp. (Williams and Norgate.) 1s. net.—Why are you a Liberal? is a question we have often asked, and have never received a satisfactory reply except from a ten-year-old boy. If electors wish to have a reason for their Liberal faith, this is the book to provide them. Prof. Hobhouse bases his political creed on history and philosophy, and works out the result thereof in the past, present, and future action of the party known by that name. It is, of course, serious reading, but not too difficult for the ordinary man. We recommend it, therefore, as an alternative in these exciting times to the "leaders" in the daily papers, and could wish that someone would give us a similar book for Conservatives. Then at least we should know "where we are." At present we are merely dinned with party cries and mutual recriminations.

*The American Colonies, 1583-1763.* By A. W. Tilby. x+302 pp. (Constable.) 4s. 6d. net.—This is a revised edition of a book which we reviewed in September, 1908, under the title of "The English People Overseas, Vol. I." The publishers have issued it in a more handy form, and the author has, at the request of friends, added some authorities and made some corrections. He still, however, does not sufficiently distinguish between the founders respectively of New Plymouth and the rest of Massachusetts. Otherwise the book is trustworthy and very readable.

*A General Sketch of Political History.* By A. D. Innes. vii+419 pp. (Rivingtons.) 6s.—Mr. Innes starts from the very beginning, and includes events of at most two years ago. Yet his book is not more pessimistic. On the contrary, it sketches with a light hand all the more important movements and events in the ancient world, and in Europe and Europeanised lands. We cannot conceive a better book to put into the hands of young people by way of introduction to European history. The maps and tables are as simple and clear of irrelevant matter as the text, and there is an index.

### Science and Technology.

*Star-lore for Teachers.* By Bellerby Lowerison. 64 pp. (The Clarion Press, 44, Worship Street, London, E.C.) 1s.—The author of this book is evidently an enthusiastic amateur astronomer, and he desires to infect other teachers with his spirit. We have no doubt that under his guidance many of his pupils have been stimulated to study the face of the sky, greatly to their intellectual advantage, but we cannot say that he is very successful in his attempt to instruct his professional brethren. In the first place, his book is misnamed, for it contains no star-lore rightly so designated, and would be described more accurately as a Syllabus of Celestial Observations. Hints are given for practical observations which can be made by children, and fundamental facts relating to bodies in the solar system are stated. As the book is written in the style of teachers' notes, we must, perhaps, not be too critical of the descriptive matter, though much of it is in very crude style. After correctly describing the variability of Algol as due to periodic eclipse of a bright star by a dark companion, the author notes "Cp. sun's variability: period 11 years; spots. Cp. earth eclipsed by moon." Both illustrations are misleading and unnecessary; while the suggestion on p. 49 that Sirius is also like Algol, "Variable, eclipsed by darker companion," is altogether wrong. There are some useful notes for boy scouts, on finding time by the stars, at the end of the book; but as a whole we cannot regard the volume as possessing any particularly distinctive merit, though the intentions of the author are good.

*A First Year's Course of Inorganic Chemistry.* By G. F. Hood. ii+107 pp. (Rivingtons.) 1s. 6d.—The aim set forth in the preface of this short manual—"to introduce the student to a few well-known compounds, but more especially to give him a first insight into the general lines of experiment and deduction which are employed in arriving at the composition of matter"—must be warmly commended. By thus limiting the ground covered, the author has produced a book well suited for the first year's work of boys in secondary and technical schools. A knowledge of simple physical measurements is assumed, but in so far as the use of the balance is introduced at all, it is only in experiments of a very elementary nature. A possible drawback is that the inclusion of practical directions in the same paragraph as additional facts and explanations may cause some confusion with beginners.

*The Country Life Readers.* By Arthur O. Cooke. 80 pp. (Henry Frowde; Hodder and Stoughton.) 7d. each.—Of quite exceptional merit are the three little books of this series. Their titles are "The Farmer's Fields," "Beside the Brook," and "Woodland Voices." The first describes and explains many important events in the routine of farm work; the second traces a river from source to sea; while the third is a capital introduction to the study of common birds. The books are not only interesting, but informative and educational, and they are quite free from the sentimentalism to be found in too many nature books for children. Each volume is excellently illustrated, many of the pictures being in colours.

*Electricity in Locomotion.* By A. G. Whyte. 143 pp. (Cambridge University Press.) 1s. net.—An attempt is here made to give a clear picture of the part which electricity has taken in the development of locomotion. In the simplest possible language the author describes the gradual development of tramway systems from the earliest date, the difficulties which have been overcome, and the

achievements which now render good service to the travelling public. The future and its possibilities form the subject of the last chapter.

#### Miscellaneous.

**Choosing a Boy's Career.** A Practical Guide for Parents, Guardians, Schoolmasters. By Henry C. Devine. vii+89 pp. (Simpkin, Marshall.)—There is no doubt that "What shall we do with our boys?" is one of the most difficult questions parents are called upon to answer. They will welcome the information given in this little book by the director of the Future Career Association. Mr. Devine has a broad knowledge of the professions and avocations available, and the guidance he gives to parents and others as to the best preliminary training for these is thoroughly practical and helpful. The imposing list of distinguished schoolmasters and others who have found his association of assistance in placing boys should inspire confidence in the minds of parents wanting help about the future of their sons. The idea of the association is excellent, and Mr. Devine appears to be working it out with skill and success.

#### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

#### Combined Physics and Chemistry Laboratory.

MAY I, as a Colonial reader who has read your paper since its inception in 1899, make bold to ask those of your readers who are experts in such matters to advise me as to the practicability, or desirability, of a combined physics and chemistry laboratory? When both can be built, is it better to have them separate, even when the amount of ground to be covered in both subjects is small? Do chemical fumes spoil balances and other physical apparatus?

Also, may I ask what is the proper equipment for classes in a new course of nature-study? And could the equipment for such a course be divided between two separate laboratories, one for chemistry and one for physics?

I should be most grateful for short, concise pronouncements from any interested reader.

Enclosing my card.

SOUTH AFRICAN.

THE term "nature-study" is so vague that some difficulty arises in answering "South African's" inquiry: to reply would be easier did we know more precisely the sense in which he uses the words. For much of the work conducted with nature-study classes the apparatus usually to be found in well-equipped chemical and physical school laboratories will undoubtedly be fully adequate. Balances; rules graduated in inches or centimetres, or better, in both units; test-tubes; glass tubing; pestles and mortars; filter papers; funnels, spirit lamps or bunsen burners; a few reagents, such as iodine, copper sulphate, potash solution, methylated spirit; a barometer, and perhaps a few thermometers—these pretty nearly exhaust the list of articles that might be required from one or the other laboratory. On the other hand, the nature-students will require some things that do not find a place in the more formal laboratories; e.g., watchmakers' eyeglasses, hand magnifying glasses of higher power (I got an excellent one from Selfridge's at 3s. 6d.), germinating boxes for seeds,

flower-pots, pie-dishes and glass jars, or celluloid quarter-plate developing dishes, together with store-boxes for dried specimens of some insects, fruits, and other objects that it is well to keep by one in stock. May I add to the list and say a few rods of soil to be treated as a nature-study garden, and a few spades and forks, rakes and hoes, and a wheelbarrow or two? The living thing grown under natural conditions is far better if circumstances permit.

Charterhouse, Godalming.

OSWALD H. LATTER.

THE English answer to your South African inquirer is that here Government regulations have had some influence in the recent duplication of laboratories. But behind the regulations are reasons, and the reasons are not the same for all schools. For large schools, with two or three science masters, organised so that they are teaching simultaneously, there should be as many separate rooms. And if there are two laboratories, why not specialise them, one for sloppy experiments and corrosive gases, the other for work which is dry and scentless? Further, the answer depends upon the standard of work; if the physical apparatus is in complicated brass-work, it must not be exposed to chemical fumes. And as such apparatus is generally expensive, higher classes are often organised so that the pupils do different experiments in turn, and the elaborate apparatus is not duplicated, but more conveniently left standing in its place from day to day; hence the same room can hardly be used both for chemistry and for other work.

But if the work is elementary and there is only one science master, there is no necessity for having two laboratories. The class work would probably involve only simple and inexpensive apparatus which could quickly be cleared away. And the apparatus being inexpensive, lessons would probably be planned so that for more effective teaching all pupils were doing the same experiment simultaneously, and elaborate arrangements of apparatus need not be kept waiting for another pupil another day. Hence the laboratory would be ready for a chemistry lesson five minutes after the physics class had left it.

If only one laboratory is used, it is necessary to protect the balances, to have an adjacent store-room with ample cupboard space for physical apparatus, and to arrange to darken at least one corner of the laboratory for optical and galvanometer experiments; also some overhead supports are useful for suspensions in mechanical experiments—iron gas-pipes are sometimes utilised. It is desirable to have one good laboratory (say 24 feet by 36 feet), big enough for the largest class which will ever have to work there. If after that store-room, balance-room, dark-room all seem necessary, why not throw these three all into one, call it physical laboratory, but use it as you please?

An interesting and recent development has been to fit the laboratory with narrow benches all facing one way, without shelves, and with stools and knee space for every pupil. This allows the same room to be used both for laboratory and lecture room, financially a great economy, though plumbing costs a little more when subservient to education.

If this were done the room would be very suitable for nature study. Here some essentials are comfortable seating for everyone, so that good drawing is possible; good and even lighting from large and lofty windows, a somewhat northern aspect being preferred in this hemisphere for microscopic work. But exceptionally sunny windows are required for growing plants, and cross lighting is uncomfortable, though cross ventilation is excellent. Perhaps the botanical experiments might be in an adjacent green-

house-corridor, out of all risk of chemical fumes. Then a lantern and screen are wanted for nature studies, so the large laboratory windows must be made with blinds to darken effectively; and chemical corrosions are a little unkind to window blinds.

On the whole it is practicable to make one laboratory do for all sorts of work, but if you are building two rooms, and have ample funds, it is better to specialise.

Bootham School, York.

HUGH RICHARDSON.

THE use of the same laboratory for chemical and physical work is quite possible if there is a side-room attached in which balances may be placed when chemical work is in progress; and if the balances are simple instruments such as are required in an elementary course, and haveagate knife-edges and covers, no serious harm will result when they are used in a chemical laboratory. The use of expensive balances in a chemical laboratory should be prohibited.

The bench fittings of an elementary laboratory may be arranged easily for both subjects. The chief difficulty would be found in providing sufficient cupboard space for storing all necessary apparatus, allowing at the same time adequate wall-space for certain physical experiments. The provision of an adjoining store-room would get over this difficulty.

H. E. HADLEY.

Kidderminster.

### Anthropometry in Public Schools.

At the instance of the headmaster, Dr. W. H. D. Rouse, anthropometric measurements were started by myself at the Perse School, Cambridge, in 1909. Since then continuous records of the boys' measurements have been taken once every term, i.e., three times a year, at intervals roughly of four months. Every boy who has attended the school has been thus examined, and his measurements recorded on a card.

Accurate records of each boy's height, weight, and chest measurement have been taken, and more or less approximate records of his eyesight, hearing, and teeth, with the view of directing the attention of parents to the latter whenever they happen to be defective. The measurements are set out on the card thus:

| Date | Age        | Form | Height      | Weight  | Chest        | Sight | Hearing | Teeth |
|------|------------|------|-------------|---------|--------------|-------|---------|-------|
|      | Yrs. Mths. |      | Fr. In. St. | Lb. St. | In. Ex. Dif. |       |         |       |
|      |            |      |             |         |              |       |         |       |
|      |            |      |             |         |              |       |         |       |
|      |            |      |             |         |              |       |         |       |
|      |            |      |             |         |              |       |         |       |
|      |            |      |             |         |              |       |         |       |
|      |            |      |             |         |              |       |         |       |
|      |            |      |             |         |              |       |         |       |
|      |            |      |             |         |              |       |         |       |
|      |            |      |             |         |              |       |         |       |

These cards are then filed and kept for reference. Each boy's measurements are copied out on to his terminal report.

The details of the measurements taken, as well as some interpretation of the results, are given below.

**Height**, taken without shoes. The accuracy aimed at is to the nearest quarter of an inch.

**Weight**, taken with clothes on, but without shoes. Roughly, the weight of the clothes may be taken as one-twentieth of the weight of the body, but it varies greatly according to the time of year. Not infrequently a boy's weight goes down in summer; this is partly due to a natural tendency to decrease slightly in weight, partly also to fewer clothes being worn during summer. Readings of the weight are taken to the nearest half-pound.

**Chest**, taken without clothes on. Two readings are taken: (i) with the lungs filled, (ii) with air exhaled.

In both cases the arms are allowed to hang at the sides, and the shoulders are kept in the natural position and not allowed to droop forward.

It has been found by experience that readings can only be taken with any accuracy to the nearest quarter of an inch.

On the measurement card a "difference column" is placed for the chest measurement, and this gives the normal chest expansion.

The younger boys of ages ten to twelve are frequently erratic in their chest expansion, and often experience difficulty in keeping the lungs completely filled for any length of time.

Comparatively few boys have a chest expansion of  $3\frac{1}{2}$  inches; a very few reach  $4\frac{1}{2}$  or even 5 inches. An expansion of 3 inches for a boy of fifteen years and upwards is a good average expansion, and for younger boys about  $2\frac{1}{2}$  inches. It is almost invariably found that fat boys have a relatively poor chest expansion.

The averages, for the two years 1909 to 1911, of the heights and weights at various ages have been worked out and are given below. As the number of readings taken during this time amounts to several hundreds, the averages are fairly representative, except for the higher ages, eighteen and nineteen, since only a few boys of nineteen years remain at the school.

For the purpose of comparison, representative figures taken from Roberts's "Manual of Anthropometry" have been inserted. I have also been indebted to this book for the method of study adopted. Roberts's figures have been calculated to two decimal places, but I have only estimated our own school averages to one decimal place, since it was found impracticable to attempt to obtain a greater accuracy than the nearest half-pound in weight and the nearest quarter of an inch in height.

Columns A and D are the Perse School averages.

Columns B and E are the averages of large numbers of public-school boys, and naval and military cadets.

Columns C and F are the averages of boys in large English towns—artisan class.

| Age last birthday | Average Weight in Lbs. |                                |                    | Average Height in Inches |                                |                    |
|-------------------|------------------------|--------------------------------|--------------------|--------------------------|--------------------------------|--------------------|
|                   | A<br>Perse School      | B<br>Average of Public Schools | C<br>Artisan Class | D<br>Perse School        | E<br>Average of Public Schools | F<br>Artisan Class |
| 10                | 68.8                   | 67.44                          | 66.31              | 54.1                     | 53.40                          | 50.52              |
| 11                | 76.0                   | 72.94                          | 69.46              | 57.1                     | 54.91                          | 51.52              |
| 12                | 82.2                   | 70.33                          | 73.68              | 58.6                     | 56.97                          | 52.99              |
| 13                | 91.7                   | 88.60                          | 78.27              | 60.2                     | 58.79                          | 55.93              |
| 14                | 103.2                  | 99.21                          | 84.61              | 61.5                     | 61.11                          | 57.76              |
| 15                | 109.5                  | 110.42                         | 96.79              | 64.5                     | 63.47                          | 60.58              |
| 16                | 130.3                  | 128.34                         | 108.70             | 67.7                     | 66.40                          | 62.93              |
| 17                | 131.5                  | 141.03                         | 116.40             | 67.9                     | 67.86                          | 64.45              |
| 18                | 143.3                  | 146.00                         | 123.30             | 68.4                     | 68.29                          | 65.47              |
| 19                | 145.6                  | 148.20                         | 128.40             | 69.2                     | 68.72                          | 66.02              |

In calculating the average at any age, say fifteen years, only those boys with two or three readings at this age have been included. If single readings had been taken into account, the averages would have become unrepresentative, since summer and winter weights may differ considerably. From the above table it is seen that our own height-averages are in every case rather larger than Roberts's averages of large numbers of public-school boys; at age eleven as much as 2 inches greater. Our weight-averages are bigger than the corresponding ones in Column B, at the ages 10-14, and 16, but are slightly less at ages 15, 18, and 19, and considerably less (10 lb. less) at age 17. This latter is due to the fact that we have a few boys of



age 17 who only weigh from 7 to 9 stone. As the numbers of boys of ages 17 to 19 who remain at school gradually becomes less as the age increases, the value of the average-weight considered as an average becomes less, and this

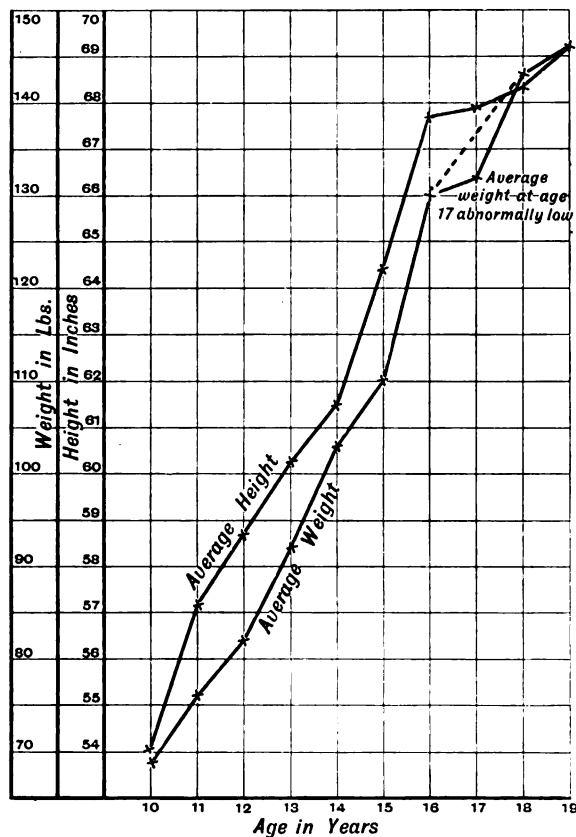


FIG. 1.

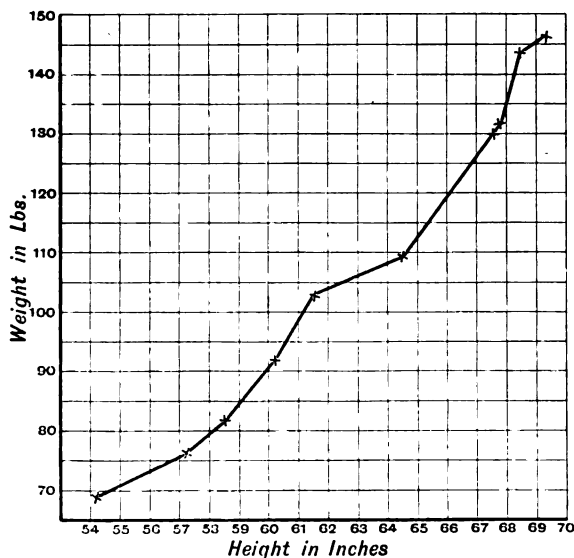


FIG. 2.

probably accounts for its being a little low. Three graphs plotted from the Perse School figures are shown above.

Graphs I. and II. in Fig. 1 represent the relation between age, and height and weight. They are interesting as

showing the periods of greatest increase in height and weight. The rate of increase is proportional to the "steepness" of the graph. In both cases it is seen that the greatest increase takes place from about the thirteenth to the sixteenth years. Graph III. in Fig. 2 shows the relation between height and weight.

The advantages of recording the physical measurements of boys from an early age are too numerous to receive more than a passing notice. Apart from the aid which the science of anthropometry might derive if measurements in a large number of public schools were carried out, the advantages to the school itself deserve recognition. It is possible to watch the effects of athletics and physical training on the system, and to correct any tendency of individual boys to over-exertion.

The records can also be made useful in helping to indicate the fitness or unfitness of a boy to follow certain callings in life when he leaves school. Especially is this the case when a boy wishes to enter for certain professions, such as the Army, Navy, or the Civil Services, in which certain standards of fitness are required.

If these standards are not already reached, it becomes a question of whether by proper training the boy could attain to them. Great benefit has also been derived from the reports of eyesight, hearing, and teeth sent out on the term reports, since many parents are notoriously careless in overlooking defects in these until their attention is directed to them.

JAMES CLAYTON.

Perse School, Cambridge.

### An Emergency Curriculum.

At the small public school to which the writer of this article is attached, an educational experiment was attempted recently which in its results more than fulfilled the objects with which it was undertaken. Owing to the fact that this year the Cambridge Senior Locals were to terminate a week before the close of the Higher Certificate examination, it appeared inevitable that the Fifth Form would be at loose ends for a week, while the Sixth were still at work and the junior forms were occupied with internal examinations.

The laws of an English school are as rigid as those of the Medes and Persians. Until the time appointed for dispersion, seven hours' daily labour is the portion of all; and yet the resumption of ordinary class work for a single form at the fag end of a summer term would be dust and ashes even to a pedagogic zealot and to the most angelic boy.

The Gordian knot was cut by a decision *ex cathedra* to hold the examination of the junior forms a week earlier, to devise a special curriculum for the last week for the whole school, excepting the Sixth Form Higher Certificate candidates, and to utilise the time for work of value outside the ordinary lines of school teaching.

The choice of subjects and the elaboration of methods and details called for much thought. To justify the departure from tradition the work must be real work, and to win the goodwill of the boys it must be interesting without degenerating into mere entertainment. It must not provoke the ready sallies of risible youth; it must stimulate and inform the cocksureness of the half-informed. To insure against a fragmentary week, at least one intensive course must be introduced. It must consist of varied pieces of work, each complete in itself and capable of varying treatment in order to interest and occupy fully boys of different ages and tastes. Climatic conditions made a maximum of open-air work desirable, nay imperative.

With these ends in view, the time-table was drawn up. So far as practicable, each piece of work was to consist of three divisions: first, an introductory lecture or dialogue to create an atmosphere and arouse curiosity; secondly, a demonstration, or practical application, or illustrative excursion; thirdly, "study periods" for writing notes and illustrations. Boys were to be encouraged to take rough notes, and make plentiful sketches, plans, and diagrams during the preliminary lectures and the demonstrations, occasional notes being dictated on important points for the sake of the younger boys. The study periods were to be devoted to writing full notes in note-books interleaved for sketches. One definite aim was to train in note-taking. Stress was to be laid on the importance of selection of material, in completing each subject, and of observing a due relation between illustrations and descriptive matter.

The rough notes would lend themselves to condensation or expansion according to the needs and capacities of different boys, while juniors whose *scribendi cacoethes* was as yet in embryo would be able to expend their energies on crayon and paint brush. The note-books were to be numbered and indexed, and so form a permanent record of the week's work.

With the exception of parallel courses of four lectures on biology for the seniors and on botany for the juniors, the same pabulum was provided for all.

The time-table was as follows:

*Monday.*—Morning: Biology and Botany, I. Lecture on the Theory of Aeroplaning. Evening: Romans in Britain, I. Introductory Lecture. Study Period.

*Tuesday.*—Morning: Biology and Botany, II. Romans in Britain, II. (Demonstration of Silchester relics in Reading Museum.) Afternoon: House Planning, I. Introductory Lecture. Evening: Life-saving display in swimming bath. Study Period.

*Wednesday.*—Morning: Biology and Botany, III. House Planning, II. (Demonstration of buildings in course of construction.) Evening: Study Period.

*Thursday.*—Morning and Afternoon: Biology Class visit South Kensington Museum. Botany, IV. Surveying and Levelling by the Thames. Evening: Study Period.

*Friday.*—Before Breakfast: History, I. Introductory Lecture on Newbury. Morning and Afternoon: History, II. Expedition to Newbury. Evening: Study Period.

*Saturday.*—Morning: Study Period.

Study periods were less formal than ordinary preparation. A master patrolled the class-rooms from time to time to ensure that good work was being done, but boys were allowed to consult one another freely with regard to doubtful points in their rough notes.

The biological course dealt with animal life from Protozoa to vertebrates, and led up to an intelligent visit to the Natural History Museum at South Kensington.

The aim of the demonstrations in botany was to give acquaintance with the structure of a plant, and of the flower in particular, by means of actual specimens, and notes were chiefly in the form of diagrams and sketches from nature. The chief study was of well-known orders, including Cruciferae, Leguminosae, Scrophulariaceae, and Labiatae; incidentally, a point was made that all boys should grasp the idea of pollination and fertilisation.

The demonstration at the local museum on the extensive collection of Roman relics brought from Silchester was given by a member of the museum committee, who is a novelist and writer of some repute. The boys were grouped in front of a map of Silchester and told why the Romans chose the British town of Calleva as an outpost on an

artificial frontier, afterwards abandoned for the natural frontier of the Thames. Roman fortifications, basilica, and town planning were fully described. Shops and baths were vividly reconstructed, and an account, rich in imaginative detail, was given of the life of the Romano-British at Silchester after it ceased to be a military outpost.

At the preliminary lecture on house planning given by the headmaster, a sudden demand for plans of an ideal house, and various searching questions, served to show the boys their ignorance of the simplest and most important facts concerning those shelters in which civilised mankind spend four-fifths of their existence. The demonstration was given by the head of the leading firm of local builders.

At the introductory lecture on Newbury the historical importance of the place was recalled; boys were required to copy a sketch-map of the district, and told where to look for places of importance on the battlefields. On arrival at Newbury they were dispatched as scouts to find and sketch for themselves the strategic points. Afterwards the battlefields were fully explained on the spot, the monument was sketched, and a visit was paid to Shaw House and Donnington Castle. The surveying for juniors, which was carried out in two divisions alternately with study work, comprised measuring the width of the Thames in four different ways without crossing the river, and an exercise in taking levels with a surveyor's staff. Incidentally, the boys were tested in estimating distances and elevations known to the instructor, and stating from memory after a short inspection the features of an unfamiliar landscape.

Among the subjects considered, but crowded out or found impracticable at short notice, were a course on "first-aid" or on diet by the school doctor, a visit to local engineering works, and a visit to a meeting of the Town Council, combined with instruction in local government.

In every way the experiment was a great success. The boys entered *con amore* upon a course of studies designed to stimulate their interests and broaden their outlook. Jupiter Pluvius was as favourable to the pedagogue as he was ruthless to the parched market gardener.

Almost, if not quite, without exception the note-books were written and illustrated with the utmost care and extreme artistic pride. Perhaps Silchester made the deepest impression. Everything Roman, from a wooden pump or iron plane to the plan of an insula or a lady's hairpin, was faithfully reproduced. Many of the sketches of the front of an ideal house were of real merit. The colour schemes and lineal exactness of biological and botanical sketches showed that enthusiastic interest had been devoted to their execution. The careful selection of important facts for incorporation in the notes showed that boys can more easily learn to discriminate between the essential and the accidental in what really interests them spontaneously than in the ordinary course of their literary and historical studies. It was noticeable that several boys shone in this particular work who are usually content or fated to remain on the lower levels of a class community.

If a first impression is correct—and the writer is confident that in the present instance it is—not a few boys have had awakened in them a taste for archaeology or nature-study likely to develop into hobbies of lifelong value. After all, boys do like a change, and perhaps our traditional curriculum is at times too narrow and hidebound for many of them. Certainly the success of an experiment due to a peculiar set of circumstances was so marked here that a similar period of instruction is likely to become an integral part of the year's work.

H. HALE.

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### Nature-study and Rural Teaching.

MUCH stress is laid upon the teaching of Nature's works, and the influence thereof in the formation and development of character and the future well-being of the rising generation. The object, worthy as it is, will be best forwarded by impressing upon the minds of the students the necessity of cultivating a spirit of observation and the spirit of inquiry; for without these little impression will be made and but little real benefit will follow the efforts of the teacher.

Beginning the work with the child in rural districts, and carrying it on until manhood is attained, the cultivation of the mind during that period to the delights of nature will so influence the character as to fit him better for the calling which he will hereafter follow.

Nature-study should be directed, first, to the development of the faculty of the love for the beautiful, and out of this will arise naturally the more direct study of plants and animal life. This being the case, the special training of a rural teacher is of less importance than the spirit infused into his teaching; but as the age and standard of the pupil develops, specialised teaching will become essential, therefore it naturally follows that the teachers must be taught. It is probable that there are but few elementary-school teachers, even in rural schools, who are sufficiently versed in nature-study to take a class of intelligent boys and girls through fields and woods, and to answer the many questions which will be showered upon them. Nor will they be in a position to initiate the required instruction for themselves. There are difficulties in providing this course of instruction for the trained teachers, because they are fully occupied and have but little time and physical energy to devote to so wide a subject as that of nature; but, by and bye, when the instincts of the young have been awakened, a desire may grow up among pupil-teachers to render themselves efficient in natural science, and so what may have been difficult at the beginning may be easy in years to come. We have but little sympathy with those who consider that specialising in natural science will directly affect the future of any boy or girl in respect of his or her future calling; but that it will influence generally for good there can be no doubt. The chief advantages which will be likely to follow are a steadying of the mind in the choice of work, the desire to live outside the influence of towns, and an inner culture which will give zest to leisure.

There are in the most beautiful of our rural districts many men of science who work and study individually and collectively, who specialise and conduct research, and who are willing to impart what they know. Among these would doubtless be found some who would in the summer by local excursions, and in the winter by evening lectures, aid the elementary-school teachers assembled from the neighbourhood, and so advance their knowledge and teaching capabilities—and this, perhaps, more thoroughly than by specialising in some training college or school. Strange to say, however, our own experience leads us to believe that little can be done in this way without teachers are officially advised to acquaint themselves with nature-study with a view to promotion, for but few avail themselves of such opportunities presented, notwithstanding the fact that the teaching is free and to all, and offered by well-known expert teachers. This, doubtless, is due to a natural desire for rest when off duty or for recreation of any other kind, and to the lack of interest taken in an alien branch of study. There can be no doubt that open-air study will do more to fit elementary-school teachers for imparting a knowledge of nature-study to the child than any course of

study in a theoretical school, though a combination of the two is desirable.

Take as an example an excursion, the object of which will vary according to the season. It may be for the study of fungi, bog plants and mosses, general botany, entomology, geology, trees, or other branches of natural science, and may be conducted by a man of science versed in the branch chosen. Let the subject of trees be chosen as one that is likely to expand on account of environment. Students are advised to keep their eyes open, to bring specimens to name, and, above all, to ask questions. There may be other men of science present, so that botany and other kindred subjects may fall naturally into the curriculum.

Fir cones are brought in to be named; their differences are noted and remarked upon; and, insignificant as this may be, it leads to wide instruction—to the value of the timber, its uses, the habitat and botanical peculiarities, the methods of propagation, and so forth. The cone has been the text for a useful sermon. Flowers are brought in plentifully and named, and peculiarities pointed out; insects are studied in flight and at rest; fungi and mosses are collected, named, and described. The soil is studied where exposed, and the geology of the district discussed. Trees throughout the woods are examined, and useful instruction given; and few matters of general interest are passed by without at least a few useful remarks. It must not be supposed that all this fund of instruction will be carried away by the followers; but the foundation is sometimes laid in these rambles in the woods which may start the young aspirant on the road to fame, and, moreover, induce him to spend his spare hours more profitably than he had hitherto done. The study gives a zest to life, and lifts the toiler out of the rut of the commonplace and places him upon a higher plane of thought.

Bring the young face to face with nature, and tell them the reason why—tell them the old story of creation as written by God himself. Say with Longfellow, "Here is a story-book thy Father has written for thee." Let there be a purpose in this rural teaching, not a simple pandering to *modern* ideas of education, but a furtherance of the true idea, viz., a building up within that there may be the drawing out of latent faculties and the fostering of the desire to know.

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## The School World.

A Monthly Magazine of Educational Work and Progress.

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SIXPENCE.

## THE TEACHER OF THE ADOLESCENT.

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**T**HE intenser organisation of modern society and the desire to increase national efficiency have rendered desirable an extension of the period of school attendance. But on proceeding to action two objections arise. One, held in deep-seated reserve, springs from the inability to forgo the earnings of the adolescent; the other, more combative, is founded on a belief in the existence of fundamental defects—inefficient teaching, and wrong direction of energies.

With the first of these objections we have here little to do, though we may suggest to trade unions the institution of an insurance scheme similar to the endowment insurances which life offices offer to the middle classes. The second objection must be taken to heart. Any attempt to reform industrial education from the outside recalls the mistakes which gave primary education an academic character, and thus intensifies opposition. For, with the transition from primary to industrial education, the environment alters completely. Pupils are no longer classified according to age or subjected to a uniform curriculum. The requirements of the individual trade, and the factors which make for success in it, become all-important. Didactic experience can give the instructor neither a knowledge of the aims and methods of the industries nor a complete grasp of the means at his disposal. On the other hand, the capable workman, thoroughly acquainted with the inner organisation of his trade, frequently finds himself completely at sea when called upon to act as instructor.

The situation is not peculiar to Great Britain. Every civilised country has a large unexplored hinterland of education incorporated in no school state. Primary and secondary education each wish to establish a protectorate over it, and annexation is postponed only as a result of their antagonism and the hostility of the educated native.

Settled government can be arrived at only by the co-operation of the contending parties. The pioneer from the primary school must learn to acclimatise himself; the explorer from the secondary capital must refrain from limiting his

energies to big-game shooting; and the native must renounce prejudices and distinguish between the virtues and vices of the intruding "palefaces."

Approaching the situation from the primary side, we see that the first difficulty arises from the character of primary education. In a democratic State all children pass through the same primary curriculum. In an oligarchy sifting begins at the age of nine or ten. In the case of those destined for the industries, the exclusive literary form of education need not persist, and more prominence may be given to workshop and laboratory. The experience of Munich, where the highest primary standards spend half their time in occupations, and of Mannheim, where classification according to ability is a fine art, is all in favour of a differentiation which will render the transition from primary school to apprenticeship less abrupt.

The questions naturally arise: How are the teachers to be trained? Is the additional burden to be placed on the overloaded training colleges? To the latter the answer is undoubtedly in the negative. The position of the training college at home is difficult enough. It is no better abroad. There, as here, public authorities spend public money in attracting young people to the primary-school service. A natural ambition makes the latter desire to attend university courses, and many hope, by industry or good luck, to escape from a profession which seems to offer no prospect beyond permanent contact with immature minds. But when public authorities have spent money on preparing people for national service they do not readily provide facilities for slipping the collar.

We have not yet recognised sufficiently that a differentiation of curricula in the primary school is advisable and that the sequel is a differentiation of curricula in the training colleges. To meet this, the colleges will not have sufficient teaching power, and therefore they will be obliged to call in the aid of the university and the technical college. Given that the latter will accept the certificate of an accredited body as entitling the holder to replace part of an examination by a thesis, subsequently delivered, ambition will be satisfied. The student who leans to the literary side of education will graduate by means of research; he whose tastes incline to activities will obtain the diploma of a technical college.

The position to be occupied by the educated native—in this case the skilled workman—will depend largely on himself. If a high standard of teaching power is exacted, he will hang back, and, generally, he will object to undergo pedagogic training. In many cases the claims of school will conflict with those of the trade, and the workman will prefer the reward of his own labour to the emoluments of a position in which he would feel socially uncomfortable. With an increase in the number of day classes, the question will ultimately be settled in favour of the man who makes teaching his sole employment. Whether he will be drawn from the working classes is a subject on which prophecy is inadvisable, but the provision of opportunities and the example of successful pioneers should attract recruits from the artisan population.

The secondary-school teacher will probably form the connecting link with the technical college, where it is presumed that he will have acted as lecturer or demonstrator before taking up work as departmental chief in a continuation school.

The experience of foreign countries is in favour of this general plan. North America, unfortunately, has little to offer us for comparison. Life there has not been unduly specialised, and the training college is better described as an experimental station than as an examining body. Switzerland offers an example of what can be done under a cantonal system on a thoroughly democratic basis. Germany presents the other extreme: oligarchic foundations with central controls.

Matters are regulated in Switzerland by the circular of December 15th, 1908. This foreshadows three different classes of teacher in continuation schools: permanent, visiting, and auxiliary. It is intended that the technical institutes should supply the permanent and visiting teachers, whilst the auxiliary should be drawn from the public-school service. To qualify candidates for employment, supplementary training courses were suggested: a preliminary course of six weeks in drawing, followed by special courses of four weeks' duration. A fundamental difference would be observed in the courses for permanent and those for auxiliary teachers. The former would be managed by the federation; the latter would be organised by the cantons or private societies. In each case, a commencement has been made already. In April, 1910, a year's course for permanent teachers was opened at Winterthur, and in August, 1910, a month's course for auxiliary teachers was opened at the Federal Polytechnicum. The latter, by way of preface, was directive rather than educative, being intended to stimulate those attending to further study. As a consequence, the course was overloaded, and much that was valuable was lost by diffusion.

For years private societies have held holiday training courses for teachers, in gymnastics, woodwork, drawing, or commercial subjects. A few years ago a more ambitious course was instituted at Winterthur. It lasted seventeen weeks of forty hours per week. Candidates for enrolment were

required to be over eighteen years of age, to have had a good secondary education, and to produce evidence of ability in freehand drawing. These courses have been dropped. They were too long for the ordinary teacher, who could not get the necessary furlough, and too short for the programme. A revival of the course has been attempted at Freiburg, but opinion seems to favour the establishment of training courses at technical institutes, so that, after learning his trade, the candidate can gain an insight into other trades, and visit schools for practice and observation. An additional course of this nature would extend the whole time of training to five or six years, and it should be under federal, not cantonal, supervision.

The small country school presents great difficulties. A change of teacher may well dislocate the continuation school, and, though much can be done by visiting teachers, the assistance of the local primary-school teacher is indispensable. To fit him better for the work, the organisation of short training courses is proposed, which may be held at the end of the training-college course, so that students waiting for employment may find at least occupation.

In South Germany, where the continuation school is highly developed, efforts are being made to secure good *Gewerbelehrer* for the trade schools, in the hope that the continuation schools will also benefit. At the Karlsruhe Polytechnic the authorities of Baden have organised a course of  $3\frac{1}{2}$  years' duration in the building department, where, in addition to the practical work of the section, the needs of the class-room are also considered. During vacations a "sandwich" system is arranged, to afford opportunities for gaining practical experience. But the course is heavy, holidays are few, and the candidate is nearly thirty by the time he establishes himself.

Candidates for admission must be either (i) primary-school teachers who have spent two years in teaching and at least eight weeks in industrial employment; or (ii) students with a good secondary education who have been engaged for a year or more in the industries.

As a consequence of this complete training, it is possible in Baden to put a trade continuation school in the charge of one man, giving his whole time to instruction. His training prevents him from limiting his outlook to the needs of one particular trade; he is able to widen the mental horizon of his pupils, and to prevent the factory worker from becoming an automaton.

Some years ago, pending a reorganisation of training schools, Württemberg was sending her future *Gewerbelehrer* to Karlsruhe; but now there are training courses at Stuttgart for both *Gewerbelehrer* and teachers of commercial subjects. The industrial course lasts for fifteen months, and is open to candidates who have completed a diploma course at the polytechnic. The commercial course lasts eighteen months, with an additional three months to be spent in gaining a knowledge of trade practice and method. Those admitted are either

primary-school teachers who have passed their second professional examination or persons who, after gaining the "one year" service certificate, have been engaged for several years in practical commerce. All candidates must possess a competent knowledge of French and English.

In Bavaria the *Gewerbelehrerinstitut*, in Munich, trains *Gewerbelehrer*, arranges supplementary courses for primary-school and other teachers, who act as auxiliaries, and prepares text-books for the continuation schools. In the city of Munich the industrial schools are staffed with men who have served an apprenticeship to a trade. When vacancies occur advertisements are issued. From an examination of a candidate's papers it is decided whether he shall be asked to attend a preliminary examination, which consists of: (i) a piece of work to test skill; (ii) a drawing to illustrate it; (iii) the preparation of an estimate of cost; (iv) a description of the processes adopted. If accepted, the candidate must serve for a year in the workshops. During the first six months no wages are paid, but after that time an allowance of three shillings a day is made. The probationer hears lectures on pedagogy, gets a knowledge of tools and machinery, and assists a capable lecturer. At the close of the year he has to pass an examination and give a trial lesson before being appointed to a permanent post.

A workman who passes the journeyman's and the master's examinations with distinction often has his attention directed to teaching as a career. If the work be congenial, and the candidate show ability, he gets work as a teacher in reserve, from which he is promoted to the permanent service. That no serious difficulties present themselves in staffing the continuation schools is due to two reasons: a teaching tradition has been established, and the prospects are well known; and the teacher receives a good salary, commencing at £110 per annum, with prospects of increase, security of tenure, and ultimate right to a good pension.

North of the Main it is found that the trades do not furnish a sufficient supply of teachers, and so more attention is given to the training of the auxiliary teacher. A society, founded in 1898, holds a course of six weeks' duration at Frankfurt and Leipzig. Much of the work is in the form of lectures—on social and factory legislation, on economics and history, on workshop and educational legislation—whilst for each special division of the industrial school there are lectures on method (three or four suffice). In addition, there are practical classes for book-keeping and calculation, with visits to factories, warehouses, and to continuation schools, to note the practice of instruction. In a six weeks' course there are about 170 lectures.

In Prussia there are short courses in commerce, industry, agriculture, to enable a teacher to qualify for work in the continuation school—a branch at a time. Where practical work is required, full day instruction over a short period is necessary, but for theory a long period may be taken with only a few hours per week. Thus we find courses for teachers of commercial subjects in Berlin and

Hamburg which last a whole year, with four hours of work per week.

The drawing courses in Prussia have lately been reorganised so as to include: (i) preparatory classes, of six weeks' duration, for the elementary training of all teachers; (ii) advanced classes, lasting from two to six weeks, for teachers who have passed the preparatory classes; (iii) special classes for teachers at large schools where a high degree of specialisation is possible. The number of students attending these courses is limited to twenty per course. A maintenance allowance of five shillings a day is made to each.

In spite of all these efforts, the state of the continuation school in Germany is frequently described as unsatisfactory, owing to the want of pedagogic skill shown by the teachers. In the most advanced circles a proposal is made that a training college for continuation-school teachers, with a practising school attached, should be established. Five years' successful work in the primary school would be a condition of admission, and a course would last five months. One hour per day would be devoted to theory, one to method, and four to practical work. Four afternoons per week would be spent in visiting continuation schools, or in the practising schools.

The method of training women teachers in Prussia differs very much from that adopted in the case of men teachers. Candidates must have attended a girls' high school for nine years, or possess an equivalent education. They are then given a training which lasts three years, at the end of which time an examination has to be passed. Then a period of at least six months has to be spent in practical work, after which a probationary year has to be served before the certificate is awarded.

In Switzerland the minimum age of admission to a training course is seventeen, the maximum thirty. The conditions are: nine years' school attendance, and a preliminary acquaintance with practice. The course lasts forty-four weeks, in each of the first thirty-eight of which twenty-four hours are given to women's work, and six to house-keeping. In the last six weeks the whole time is given to housekeeping.

In no country has the question of the training of the adolescent at present been successfully solved. There is nowhere a desire to minimise its importance, and no great wish to shirk the inevitable expense. The solution lies partly in the direction of reshaping primary instruction and partly in the proper provision of a competent staff of instructors. If these two ends are achieved, the confidence of the public will be gained, and the rest may be left to tradition and public spirit.

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*Catalogue of General Chemical Apparatus and Laboratory Accessories*, 1911-12. 804 pp. (Gallenkamp.)—We commend this excellently produced and conveniently arranged list to all teachers of chemistry. If added to the laboratory reference books, it will fully justify its position by its frequent usefulness. Illustrated descriptions, together with particulars as to cost, of all apparatus required in the chemical laboratories of schools and colleges are provided.

## THE ORAL TEACHING OF LATIN.

AN ACTUAL LESSON AT THE PERSE SCHOOL,  
CAMBRIDGE.

By R. B. APPLETON, B.A.  
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THOSE who believe in the oral teaching of Latin are no longer in the position of holding a brief for a very tentative proposal. But although good wine needs no bush, one must at any rate taste the wine before its goodness can be appreciated; and so the following account of the actual experience of one who, so late as last December, was engaged in teaching Latin on the old "gerund-grinding" system may perhaps not be without interest.

Last December I was teaching a class of by-no-means unintelligent boys (of about fourteen years of age) on a very unintelligent method. These boys were by no means unintelligent last December; but what I have learnt since then has provided me with an answer to the question which has often puzzled the classical schoolmaster: "Why do boys seem so keen when they begin Latin, and so frightfully dull when they have had a year or so at it?" I should not like to meet my once-intelligent boys a year or two hence. I think we did the usual things; at any rate, I remember that one term we stumbled (what a "scandal" to the teacher!) through some twenty chapters of Caesar, and the next term we tried "simplified" Livy, which we found far too difficult. All the time, of course, we were "loving the beautiful girl"—not the Latin muse, unfortunately—or sending the ubiquitous ambassador to do something or other which was only less foolish than what we were ourselves doing.

Now I am sufficiently near to this (*horresco referens*) to be able to contrast the work done then with what I am now doing with boys of about the same age.<sup>1</sup> As regards general intelligence, there is nothing to choose between the two sets of boys. The real difference is this—the method of teaching the one set is soul-destroying hack-work, that of the other is the work of an intelligent man. But enough of general remarks. An actual lesson will best speak for itself, and I therefore append an account of a by-no-means unusual one. The lesson occupied three-quarters of an hour only, and is one of two similar lessons given every week. The rest of the time is spent in reading Horace (this term), in "free composition," in "text composition,"<sup>2</sup> and in an occasional grammar lesson. This account was written out immediately after the conclusion of the lesson.<sup>3</sup>

## THE ACTUAL LESSON.

I entered the class-room with some corrected papers in my hand, and was greeted with a chorus of "Licetne mihi distribuere?" I gave them to a boy and said, "Licet tibi." While this boy was returning the papers a second boy asked, "Quid

est proverbium hodie?"<sup>4</sup> (It should be explained that the experiment has been tried of beginning each lesson with a proverb, which a boy writes on the board, and also at the top of his homework when written work is done at home. It is surprising how much they learn in this way.) The boy who had asked for the proverb was told to write on the board, "Serius aut ocus metam properamus ad unam." Most boys knew all the words except "properamus," which I paraphrased as "celeriterimus," whereupon a boy immediately suggested "maturamus." For just a few boys "serius" and "ocus" had to be explained. "Lente aut celeriter" was suggested and corrected to "lentius aut celerius." When I asked, "Qualem ad metam omnes properamus?" I was, of course, informed "ad unam metam"; but this was quickly followed by "ad mortem properamus" from one or two who were quick to grasp the metaphorical use of "meta."

Before proceeding to read to the class, sentence by sentence, the continuation of a story which I was adapting from Apuleius, I asked a boy what he remembered about the end of the story I was telling them last time. (Two periods a week are devoted to this kind of work.) The boy replied: "Vidi senem quemdam in foro, qui oravit quis vellet mortuum custodire." "Oravit" was corrected by another boy to "rogavit"; and when I asked what should be said if we used "oravit"—all conversation is, of course, in Latin—I got the correct "oravit me ut mortuum custodirem."

The portion of the story (adapted from the "Metamorphoses" of Apuleius) read during this lesson was as follows:

Senex igitur domum quamdam me perduxit, et mihi demonstravit matronam flebilem, fusca veste contactam, quae me oravit ut quam diligentissime corpus mariti sui custodirem. Deinde me ad aliud cubiculum induxit, ubi vidi cadaver splendentibus linteis coopertum. Septem quibusdam testibus introductis, corpus revelavit et singula demonstrabat. "Ecce," inquit, "nasus integer, incolumes oculi, salvae aures, illibatæ labiæ, mentum solidum." Quo dicto, iam exire incipiebat, sed ego oravi eam ut omnia quæ usui essent mihi adhiberet. Atque ei roganti quæ vellem respondi "Lucernam et magnam copiam olei." Itaque ancillæ cuidam imperavit ut hæc mihi daret; deinde omnes statim exierunt, et ego in cubiculo nullo nisi cadavere comite inclusus sum. Iamque crepusculum aderat, et nox procvata, et nox altior, deinde iam nox intempesta. Magno timore afficiebar cum repente sub ianuam reposit mustela.

The above was, of course, read out very slowly, and explained *pari passu* by paraphrase or by question and answer. What took place was roughly as follows:

*Magister recitat.* Senex igitur domum quamdam me perduxit, et mihi demonstravit matronam flebilem, . . .

*Puer.* Non intellego "matronam."

*M.* Mulierem iam in matrimonium ductam.

*Alius puer.* "FleBILEM" non intellego.

<sup>1</sup> A useful collection of proverbs and other gnomæ sayings will be found in "Florilegium Proverborum Universæ Latinitatis," by Prof. Margalitis (Budapest, 1893). One needs a good store, for a proverb a day is likely to exhaust the teacher's offhand knowledge of the more strictly classical ones within a few weeks. The proverbs in this collection are arranged under the words alphabetically, so that one can look up new words which the boys have lately had, and, in many cases, "rub them home" by proverbs containing them on the following days.

<sup>2</sup> The average age of the form to which this lesson was given is 14½ years.

<sup>3</sup> Based on Ritchie's "Fulvæ Faciles."

<sup>4</sup> Perhaps it is only fair to say that the idea of writing this account was not thought of until after the lesson in question.



A boy writes on the board "Flebilis, -e."

M. Is flebilis est qui flet. [A boy writes: "Fleo, -ere, flevi, fletum."]

"Flet" was then explained by "lacrimat."

M. Num gaudens homo flet? Puer. Non flet.

M. Qualis homo flet? P. Tristis homo flet.

Magister recitat. . . et mihi demonstravit matronam flebilem, fusca veste contactam. . .

"Contactam" was understood as soon as the principal parts of "contego" were given by a boy, and "fusca" was paraphrased by "nigra, vel pulla." These words suggested "pullatus" and "candidatus" or "albatus," all of which were written by a boy on the board and by individual boys in their own note-books with explanations, thus:

"Pullatus, qui pullam vel fuscam habet vestem," and so on. "Candidatus" suggested an etymology, and so its English derivative was asked for and correctly given. When asked for the explanation of this derivative, one boy said: "Quia Romani qui volebant"—then, after hesitation—"intrare senatum vestes candidas gerebant." I corrected his "qui volebant intrare senatum" to "qui volebant magistratum inire," and told the class that the words "albatus" and "pullatus" had reminded me of another proverb, and that therefore for that day we would have two proverbs. A boy wrote on the board, "Albati ad exsequias, pullati ad nuptias."<sup>1</sup> When it was explained that some such verb as "eunt" or "veniunt" was to be understood, almost every boy understood the proverb, and correct answers were given to such questions as "Num oportet homines pullatos ire ad nuptias?" "Quo modo oportet eos ire ad nuptias?"

Magister. Hoc igitur proverbium de iis dicitur qui nihil recte possunt facere.

The reading of the story was then continued.

M. recitat. . . quae me oravit ut quam diligentissime corpus mariti sui custodirem. . .

"Maritus" was unknown to several boys, but was quickly understood as "is qui uxorem in matrimonium ducit."

M. recitat. . . Deinde me ad aliud cubiculum induxit, ubi vidi cadaver splendentibus linteis coopertum.

"Linteum" was explained as "lintea vestis, e lino facta," and the English for "linum" was asked for and correctly given. "Coopertum" was explained as "contectum," and the parts of "coopertio" were asked for.

M. recitat. Septem quibusdam testibus introductis, corpus revelavit et singula demonstrabat. "Ecce," inquit, "nasus integer, incolumes oculi, salvae aures, illibatae labiae, mentum solidum."

"Testis" was explained by a brief account of what a "testis" does, whereupon the English "witness" was forthcoming from the first boy asked. A boy explained "revelavit" by "reduxit vestem," for which I substituted "vestem removit." Most of the boys correctly pointed out the different parts of the face; only for "mentum" had I to touch my own chin. The various adjectives were ex-

plained as synonyms, or by such words as "non vulneratus, non laesus."

At this point the reading of the story was suspended for about five minutes, while different boys were made to tell the story, thus far, in their own words. A few "leading" questions helped them whenever they forgot anything.

The story was then resumed.

Quo dicto iam exire incipiebat, sed ego oravi eam ut omnia quae usui essent mihi adhiberet. Atque ei roganti quae vellem respondi "Lucernam et magnam copiam olei."

The predicative dative seemed to be understood, but after finishing the piece I asked in English what kind of a dative it was, and told a boy to give me the Latin for "This is a great help to me," which he did correctly, with the predicative dative "auxilio." "Oleum" was soon explained as what we burn in a lamp in order to have a light.

M. recitat. . . Itaque ancillae cuidam imperavit ut haec mihi daret; deinde omnes statim exierunt, et ego in cubiculo nullo nisi cadavere comite inclusus sum. . .

The only strange word<sup>1</sup> was "ancilla," which one boy guessed by the context to mean "servus"; and, upon having it explained as "servus femininus," another boy called out "serva."

M. recitat. . . Iamque crepusculum aderat, et nox propecta, et nox altior, deinde iam nox intempesta. Magno timore afficiebar cum repente sub ianuam repisit mustela.

For "crepusculum" one boy, evidently a budding French scholar, suggested "idem quod Gallice"; and, after a brief explanation, another boy was asked for the English, and he immediately replied, "twilight." "Nox propecta" was explained by analogy with "homo propectae aetatis," which we had come across a term previously in Ritchie's "Fabulae Faciles." "Mustela" I explained myself as "weasel"—the only word in the whole lesson for which I myself gave an English equivalent. The principal parts of "repo" and of "serpo" (as a synonym) were written on the board, and both words were understood as "quo modo ambulat serpens."

A few minutes were still left of the period of three-quarters of an hour, and I asked one boy what he thought the weasel was, to which he replied, "Saga erat." This he was able to say because in the previous similar lesson he had been told that the witches in Thessaly could change themselves into all sorts of animals. The boys were obviously interested in the story, and wished it to go on—I heard "volo pergere" and even "velim pergas" from one polite stylist<sup>2</sup>—but the latter part of the story (quite apart from my unwillingness to spoil the dramatic climax) had to be "rubbed in" by a few questions.

When all this is written out it seems a lot to have got into three-quarters of an hour. But we must remember that we all speak more quickly than we write; and even boys speak Latin much

<sup>1</sup> Many words, of course, such as "lucerna" and "cubiculum" had been encountered in previous instalments of the story.

<sup>2</sup> He had often heard "velim tu recites" as a variation for "recita" or "volo te audire recitentem."

more quickly than they speak English—when they are trying to translate. Everyone must be familiar with the long pauses even in the prepared translation of a young boy. (As to translation, by the way, my experience is that a good boy will translate an ode of Horace much more quickly after it has been read aloud in Latin and paraphrased, than if he had merely “prepared” it at home.) And, again, not a second was wasted, either to enforce discipline or for any other of the causes which are so frequent under the old system of teaching. Not that the lesson was at all hurried; in fact, it was quite leisurely, with plenty of opportunity for giving the right intonation and effect to the story, as, for example, when the gradual approach of midnight was described. And the boys felt this too. One could almost feel them shudder as if they were listening to an English ghost-story.

Now I want to contrast this quite typical lesson on the new method with the kind of lesson which it is possible to give, on the old method, to boys of about the same age. Let us make the contrast definite upon two points:

1. The amount of Latin learnt during the period.

2. The pleasure which the boys take in learning. Upon the first point there is absolutely no room for difference of opinion. By the old method many a period is spent (*e.g.*, in translating) on what is really no more than checking what a boy has done. A good boy learns absolutely nothing new in such a period; whereas on the oral system every boy learns several new words and phrases, all of which he writes in his notebook, and most of which he remembers easily, though to ensure that nothing be lost revision of vocabularies is set as homework from time to time.

And the second point is perhaps not merely a humanitarian one. Philosophers have told us that pleasure promotes vital activity, so it is no wonder that a boy gets on well if he enjoys his work. In these days, when we hear so much about the psychology of education, much of which seems rather visionary, perhaps we might do well to confine our attention to the simple psychological effort of making the time a boy spends at school rather more pleasant to him than it is often apt to be.

After such a lesson as that described above, the boys write out the story in their own words as homework. A few such versions are appended in their uncorrected form.

(a) Boreas. Serius aut ocus mentam properamus ad unam. Ante diem XII Kalendas Iulias. Natus sum XIII annos.

Cum procero domum eius ii, et cum intravissemus matronam pullatam, qui maxime lacrimabat in cubiculo vidimus. Mulier surrexit, et ad alium lectum me duxit, in quo cadaver contextum splendida lintea veste erat. Dixit cadaver maritum suum fuisse. Septem testes quosdam introduxit, et corpus revelans, “Ecce,” inquit, “nasus integer est, tuti sunt oculi, incolume est mentum, salvae aures sunt, et labiae illibatae sunt.” Hoc facto testes excesserunt, sed rogavi eam num liceret mihi

lucernam et copiam olei habere. Tum abivit. Post breve tempus ancilla lucernam et oleum tulit mihi. Cum crepusculum venisset, nox erat, et repente, cum horologium nuntiavisset intempestam noctem esse, mustela sub ianuam repisit.

(b) Pluvius. Ante diem XII Kalendas Iulias. Natus sum quattuordecim annos.

1. Albati ad exsequias pullati ad nuptias.

2. Serius aut ocus metam properamus ad unam.

Cum ad quamdam domum me perduxisset, demonstravit matronam flebilem (qui flevit), fusca veste contextam. Ad aliud cubiculum venimus, et cadaver sui mariti vidi. Senex linteum abduxit, et testes septem introduxit, revelavit singula, “Ecce” inquit “nasus incolumis, salvi oculi illibatae labiae solidumque mentum.” Tum omnia usui adhibebat. Veritus sum ne viderem sagas specibus horribilibus, et imperavi ancillae cuidam ut mihi daret oleum, sed omnes extra porta venerunt. Meum negotium impedivit me quominus haberem lucernam. Crepusculum aderat, deinde nox propecta, deinde intempesta. Subito sub ianuam mustela repisit!

(c) Homo. Ante diem undecimum Kalendas Iulias. Natus sum quindecim annos.

Duxit me ad matronam flebilem fusca lintea tectam. Hoc mulier linteum revelit quae cadaverem texit et monstravit mihi et testatores qui domi erant, nasus integer, salvae aures, oculi incolumi, labiae illibatae mentum solidum et magnam copiam olei. Tum me relinquit. In media nocte sonitum audiavi et subito mustela serpsit sub porta.

Of these three boys,<sup>1</sup> both (a) and (b) have learnt Latin on the oral system from the beginning (they only started in September, 1909, so that they have not yet had two years at it), whereas (c) came to us from outside after having started Latin on the old method. It will be noticed that his grammatical grounding does not seem to have given him much of a pull over (a) and (b)! He makes careless grammatical mistakes in the same way as, only more frequently than, (a) and (b). But there is another difference between his work and the work of the first two boys. He does not feel at home in writing Latin, and composes his sentences more artificially than (a) and (b) do. There is no movement of thought—otherwise all his nominatives after “monstravit” could never have been written—and his units are rather stereotyped counters. (a) and (b), on the other hand, write freely, and might almost be said to think in Latin. They make no syntactical mistakes (this is a sure sign that their writing expresses thoughts which have been thoroughly grasped), and they quite naturally use a good many of the commoner syntax constructions. Those who think it impossible, on the oral method, to cover the ground of the main syntax rules may notice in these first two pieces the correct use of “oratio obliqua,” indirect question, “cum” with a past tense, indirect command, and verbs of fearing and preventing. Again, the majority of the grammatical mistakes which (a) and (b) make are due to pure carelessness, which it should not be difficult for the master to eliminate by insisting upon greater accuracy both in speaking and writing.

<sup>1</sup> Their ages are (a) 13 years 7 months, (b) 14 years 4 months, (c) 15 years 10 months. On the last half-term order their respective positions in form were (a) 3, (b) 6, (c) 9 out of 15.

## CURRENT GEOGRAPHICAL NOTES.

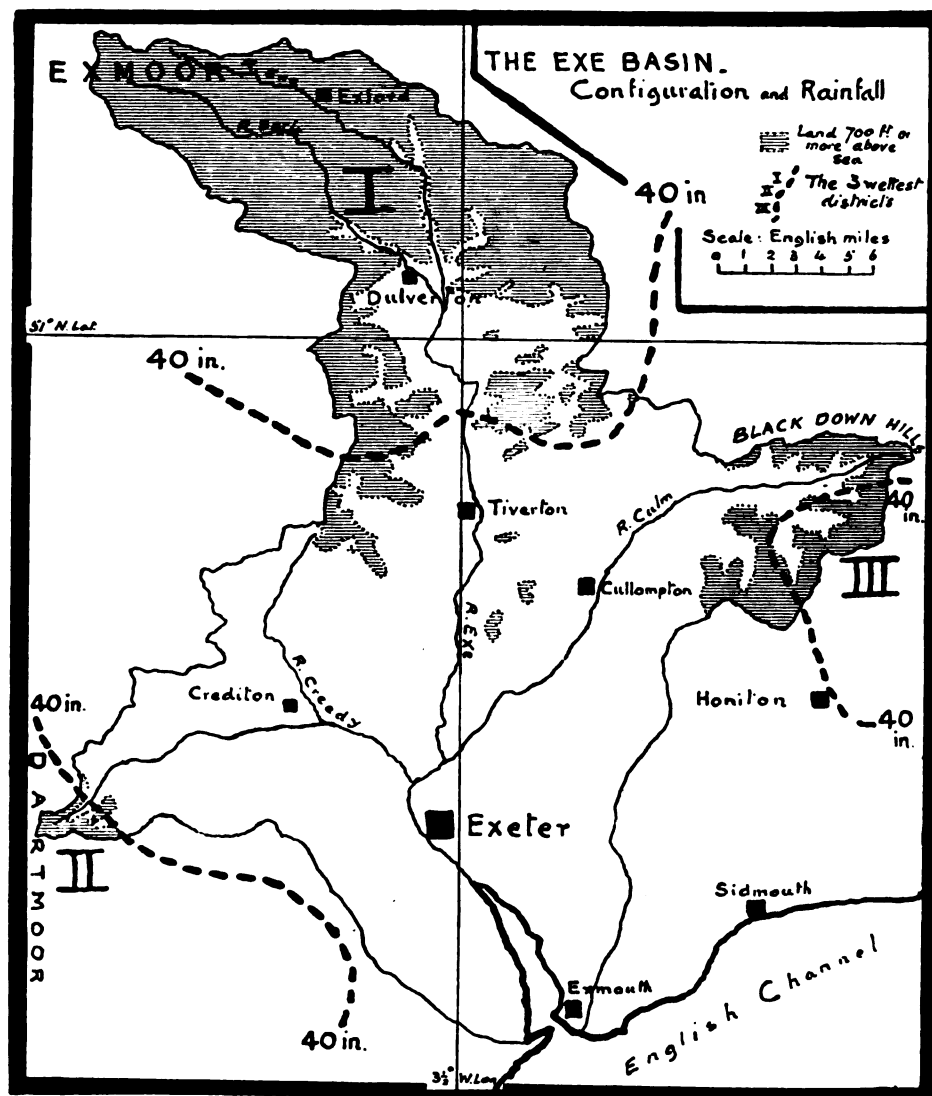
By E. R. WETHEY, M.A., F.R.G.S.  
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**Rainfall and Configuration: The Exe Basin.**

THAT the distribution of rainfall is governed by the configuration of the land and the direction of the prevailing wind is obvious directly an orographical map is studied in conjunction with one showing precipitation. Examples of this regimen are always useful to the geography teacher, so no apology is needed for yet another result of comparatively recent investigations. For some time past the research department of the Royal Geographical Society has specially encouraged work in connection with rivers, and from time to time the journal of the society publishes reports and results. These comprise the measurement and mapping of basins, the reading of water-level gauges, observations on velocity and discharge, analysis of water, reports on rainfall, &c. Dr. Strahan, with the help of other able men, has been engaged upon the Exe, and Dr. Mill has reported upon its rainfall. The resulting articles and maps are of great interest, and it is from them that this note and the accompanying map are compiled.

In the basin of the Devonshire Exe the "lie of the land" and the prevalence of the usual south-westerlies prepare one at once for the way in which the rainfall is distributed. The 700-foot contour line may be taken as the line of demarcation between lowlands and uplands. This gives three hilly districts to the basin, and it is, as one would expect, on these three that the major portion of the Exe rainfall is precipitated. Of the three, far the most important is Exmoor (No. I.

on the map). Covering an area considerably more than one-third of the whole basin, and receiving an average annual rainfall which ranges from 40 inches between Tiverton and Dulverton to more than 65 inches at the sources of Barle and Exe, this highland area governs the whole flow of water in the main river. The other two regions are of secondary importance to the whole basin, but of primary importance to the two chief tributaries, Creedy and Culm. No. II. may be regarded as



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a fringe of Dartmoor, where—outside the limits of the map—the figures in the neighbourhood of Princetown exceed 70 inches in the year. Only the extreme west of the Creedy valley touches this fringe, and at the same time the 40-inch average. No. III., away in the hills of East Devon, feeds the extreme east of the Culm valley. Further investigation here is expected to show a thin connecting line with the south-east corner of the Exmoor zone. All the rest of the basin, i.e.,

the whole of the centre and lower portion, or some 60 per cent. of the whole area, nowhere receives so much as 40 inches, and in one part—round Exmouth—drops below 30. It is practically in just that part of the Exe basin which lies below 700 feet. The rainfall figures, it should be noted, are not those of any particular year; they represent the average for the last forty years.

### Geography and the United Kingdom Silk Trade.

In the direct development of any industry geography usually plays a most important part, and nowhere more so than in the rise and growth of a great textile trade—witness cottons, woollens, and linens, and their debt respectively to the geography of Lancashire, the West Riding of Yorkshire, and the north-east corner of Ireland. The fourth great textile, silk, owes nothing to geography in the United Kingdom. The raw material, to begin with, was doomed to become an import trade. Many attempts, especially about the time of James I., have been made to grow mulberries and rear silkworms. The last great effort in or about 1825 was made in Ireland. Like all its predecessors, it was a complete failure. Apart from labour questions, the British "climate" was a stumbling-block which could not be overcome. The manufactured article can only boast of one really successful period—roughly the eighteenth century—and then it succeeded in spite of geography. In fact, directly the artificial cause of its success was withdrawn, the industry began to decline, and has continued to decline ever since. Though the whole subject is one rather of economic history than of geography, it is worth investigating, if only as an exception to an almost universal rule. There is much, too, in it that is interesting to the student of *commercial* geography.

Briefly, the silk trade of the United Kingdom divides itself into three epochs:

(i) *The Early Period.*—This was from the times of Edward III. to the end of the seventeenth century, when it grew rather spasmodically by the help of varying degrees of protection. At the end of this epoch "protection" had become "prohibition"; for all importation of French and Italian silks were absolutely prohibited in 1698, and all Indian and Chinese silks in 1701. We were by way of becoming a great silk-manufacturing country.

(ii) *The Eighteenth Century.*—This, the second epoch, saw these protective and prohibitive ideas pushed thoroughly home. During Queen Anne's reign there was a slight relaxation of the prohibitive duties, but all through the Georgian era down to 1826 heavy duties, only just short of prohibition, were in full force. From 1765 the import of fully manufactured silk goods from any country was expressly forbidden. This was the age *par excellence* of smuggling. Ladies were determined to have "Pompadour caps," "Orleans handkerchiefs," and "Conti mantlets." From 1724 to 1731 only 331 lb. of silk goods were entered in the British Customs, and yet half the silk worn in

England was French. At the end of the period 95 per cent. of the silk registered at French ports for the United Kingdom actually never appeared in our official records at all! But the British home trade fairly boomed throughout this second epoch.

(iii) *The Nineteenth Century.*—Then came the period of tariff reduction, followed by tariff abolition. By 1845 tariffs were reduced to a general duty of 15 per cent. *ad valorem*. They were finally abolished altogether in the famous commercial treaty with France in 1860. This was accordingly the epoch of decline.

Here are a few concrete examples of the rise and fall of the British silk trade. In the year 1700 Spitalfields was the only silk centre in the islands. In 1800 there were Macclesfield, Congleton, and Coventry in addition to Spitalfields, to say nothing of Stockport, Leek, Derby, Glossop, Chesterfield, Sherborne, Barnsley, and a host of minor centres. In the middle of the eighteenth century there were not much more than 500,000 lb. of silk "thrown" per annum; at the beginning of the nineteenth the figure was well over 1,000,000, and English silks were being exported all over the world, with the possible exception of France. No wonder! Inventors were rewarded for inventing, manufacturers were paid for exporting. So long ago as 1732 the Lombes of Derby were granted £14,000 from the Public Treasury for patenting certain "Italian engines" in the trade, while the first of the Georges initiated bounties on the exportation of all "wrought silk" at the rate of 3s. a pound. So much for the rise; now for the fall. Let the census figures speak:

|                         | 1851.   |     | 1901.  |
|-------------------------|---------|-----|--------|
| Silk Employees ...      | 130,000 | ... | 39,000 |
| Weavers in Spitalfields | 40,000  | ... | 300    |
| Weavers in Derby ...    | 6,000   | ... | 660    |
| Weavers in Coventry     | 15,000  | ... | 700    |

(The official figures for 1911 are not yet out. They should be interesting.)

At the beginning of the twentieth century seven out of every eight mills in Congleton had gone, and two out of every three in Macclesfield. Indeed, the descendants of the old Macclesfield weavers nowadays mainly run the silk industry at Paterson, New Jersey! Two old silk mills in Manchester are now lads' clubs! As a great trade "silk" is no longer in existence. It thrived artificially—on tariffs and bounties; and when these were withdrawn it drooped, like a plant on the wrong sort of soil, and nearly withered away. The whole question is really a lesson on protection and free trade, in which each school can and will find its own arguments. It would be interesting to have the views on the subject of a manufacturer, a consumer, and an unemployed, though one could hazard a pretty accurate guess at each beforehand. The only "geography" that comes in is of a negative description. Anyone who cares to probe more deeply into the causes and consequences may be referred to an excellent article on "The English Silk Industry in the Eighteenth Century," by Mr. G. B. Hertz, in *The English*

*Historical Review* (October, 1909), to which we are indebted for several of the facts and figures here cited.

### The Navigation of the Yangtse Kiang

Any attempts to improve navigation on the Yangtse Kiang have an important bearing on the future of China's commerce and trade, for the famous river is her one great inland waterway. To the north, the Hwang-ho, important though it looks on the maps, is shallow, rapid, and, above all, subject to inordinate flooding. Hence it is only navigated by small boats here and there. To the south, rapids impede the course of rivers to such an extent that the cost of transport becomes prohibitive. Indeed, it is to this general difficulty of river transport that some writers ascribe the limitation of China's exports. The Yangtse itself is magnificent. Boats of 600-800 and even 1,000

through the rapids by means of a capstan. The first attempts have been successful; the journey has been done in seven days, and the twins have not been separated. So far so good, but there should be exciting times ahead for Ichang-Chungking cargoes, not to mention passengers. The accompanying rough plan shows what may be termed sectional navigation on the Yangtse.

### AN EXPERIMENT IN ELEMENTARY WOODWORK.

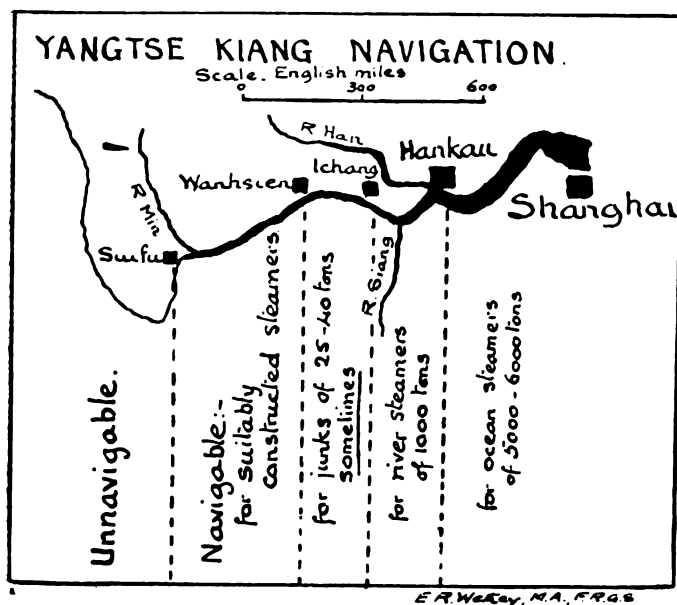
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#### I.

To overcome the force of tradition, to disestablish conventions, is always difficult, in no instance more than in the case of school practice: yet nowhere is it more absolutely required.—"The Teaching of Scientific Method," Armstrong.

Nobody tells the whole truth about institutions. They prefer to accept traditions and to repeat respectful formulas.—"The Southerner," Nicholas Worth.

THE besetting danger of all school work is that it tends to become formal, either from over-systematisation or from the benumbing effect of tradition. One is hardly surprised, therefore, to find that the development of the methods of manual training is being retarded by the retention of stereotyped "schemes" of work and by slavish adherence to accepted ritual. The following brief account of an attempt to escape from the shackles of convention may consequently be of interest, now that the educational value of the training is recognised and some place for the work is found in the curriculum of nearly every school. The experiment is part of a comprehensive scheme of manual training dealing not only with woodworking, but



tons get up to Ichang, 1,000 miles from the sea, up to which it might be said literally all is plain sailing or steaming. The rise in level from Shanghai to Ichang is only 130 feet. Beyond Ichang, however, the usual difficulties occur. There are rapids up which at high water no boats can ascend, while at low water coolies in hundreds have to be harnessed to haul up any junks which are daring enough to brave the passage.

It is therefore interesting to note the latest attempt to improve this awkward part of the river's course. The Sechuan Steam Navigation Company, trading between Ichang and Chungking, naturally desires to establish regular communication between these two ports. It has accordingly evolved the idea of a "twin" vessel, which consists really of a tug and an ordinary boat lashed together. They make, or it makes, the journey unless the current is too strong, in which case the tug goes on ahead by itself, anchors, and then hauls the other "twin"

with carton-work, metal-work, with all the varied media available, in fact; but this account deals with elementary woodworking alone, in order to keep the articles within reasonable limits.

In a formal woodworking scheme certain "exercises"—generally on the use of tools—must be worked first, and in nine cases out of ten the fundamental exercise is one on the use of the plane. Now, while it is undoubtedly essential in woodworking that boys should learn to use this tool sooner or later, it is debatable whether its sudden introduction can be justified in the case of boys of eleven or twelve years of age, who have only just completed, let us say, a course of cardboard work. It is admittedly unwise to allow young boys to spend much time in mere exercises which are of no value when completed—in which the boy expresses nothing—and it is certain that skill is not to be acquired without the expenditure of much time and energy, without much practice. It has, in fact, been

estimated that a boy must plane some 150 square feet of timber before he can properly carry out this fundamental operation in wood-working. Apart from these considerations, there are other reasons why "exercises" on the use of special tools, the plane in particular, should be postponed—reasons connected with the principle that new tools, like new methods, should not be introduced until the novice vividly realises the necessity for such an introduction. To partial appreciation of this principle is due the fact that many authorities recommend the introduction of a course on strip woodwork, or basketwork, after the course of paper-folding and cardboard work; but in the writer's opinion such courses, although valuable so far as they go, are more suited to the kindergarten, and boys of the age specified are quite fitted, both mentally and physically, for work of a more advanced nature.

It appears, then, that there is a real demand for a course of work in which the boy shall be asked to *make* something—of use to others, if not to himself (though preferably, of course, the latter)—involving exercises arranged in increasing difficulty and complexity from the first, which should be of the simplest possible nature; a course in which the refinements, the niceties of the usual woodwork scheme are not absolutely necessary, and so can be postponed until the boys learn to appreciate the necessity for those refinements and recognise that a certain amount of drudgery, of routine work, is unavoidable if they wish to do work of real value. What is known as "rough carpentry" is a field rich in the type of exercises indicated. Packing-cases, stools, troughs, sheds, &c., may be constructed from rough, or, if the instructor prefers, from ready-planed material, and in making such objects the boys gain much valuable experience in the use of the handsaw—both for ripping and for cross-cut work—in marking off, in using hammer and nails, in estimating quantities, and in judging timber; they may continue their practice in the making of working drawings—which are now more complex than those required in the carton course—while at the same time they learn something of the elementary principles of construction. Further, and this is of the highest educational importance, the necessity for the adoption of a certain routine in "setting out" work, the importance of method in using tools and the need for the tools themselves, are emphasised in a manner they cannot fail to appreciate.

For the construction of many of the objects suggested benches are not absolutely necessary, so that the initial cost of equipment may be much reduced. Handsaws, sawing-stools, hammers and nails are indispensable, while scales, try-squares, and drawing materials should also be supplied. The timber may be second-quality yellow deal, planed or unplaned according to circumstances, from  $\frac{1}{2}$ " to  $\frac{3}{4}$ " thick and of various widths.

A packing-case, being an object of recognised utility, serves excellently as the first model in such a course. The boys are asked to make properly projected views of a lidless box, the external

dimensions of which may be  $2' 6" \times 2' 0" \times 1' 6"$ ; or the problem may be modified so as to correlate more arithmetical work by introducing the question of the storage capacity of a ship's hold, or by asking for a box to hold given packages. Assuming that the class has been through a course of cardboard work of which drawing forms an integral part, they will have no difficulty with the plan and elevation required, and should be able to produce the drawing shown in Fig. 1. They are now told that the box is to be made of yellow deal boards  $7"$  wide and  $\frac{1}{2}"$  thick, and are asked to indicate the boards on their drawings. They see that in order to make any side of the box, they require two full widths of board and

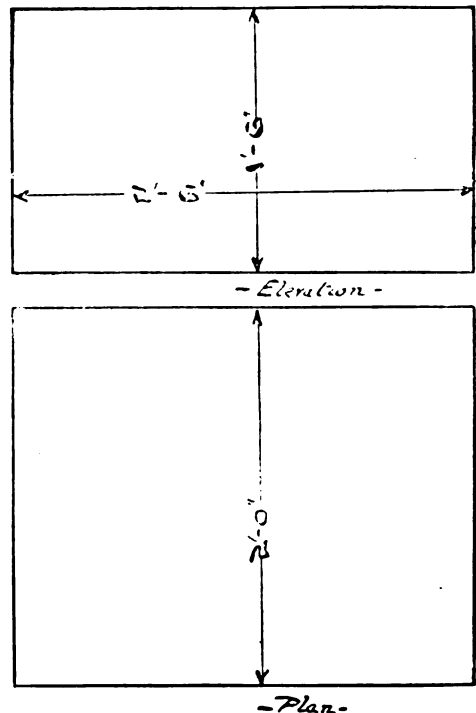


Fig. 1.

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one half-width: this accounts for  $(7" + 7" + 3\frac{1}{2}" = 17\frac{1}{2}"$  of the total height, while the remaining  $\frac{1}{2}"$  is given by the bottom boards which are, of course,  $\frac{1}{2}"$  thick. If they have realised that the given dimensions are *external*, they should be able to add other lines to their drawings—which now take the form shown in Fig. 2—and also say what is the length of plank required for the sides of the box. That is to say, the instructor asks such questions as will elicit, if necessary, the fact that either the long sides must be made  $1"$  shorter than  $2' 6"$ , or the short sides  $1"$  less than  $2'$ , according to whether the ends overlap the long sides, or the long sides overlap the ends, as in Fig. 2. The next problem is to settle the quantity of wood required for the bottom and its best arrangement: whether it would be better to have four boards  $7"$  wide,  $2'$  long, with a strip  $2"$  wide,

2' long, to make up the length 30"; or to have three boards 7" wide, 2' 6" long, with a strip 3" wide, 2' 6" long, to make up the width 24".

At this stage it will be found convenient to digress so that the idea of isometric representation to a natural scale may be introduced, and the boys should be led to discover how to represent adequately a cuboid having its three leading dimensions of length, breadth, and thickness lying along three lines inclined to one another at angles of  $120^\circ$ . The boys appreciate the value of this conventional method of representation, and quickly learn to make such a view when they are given the ordinary plan and elevation, while, on

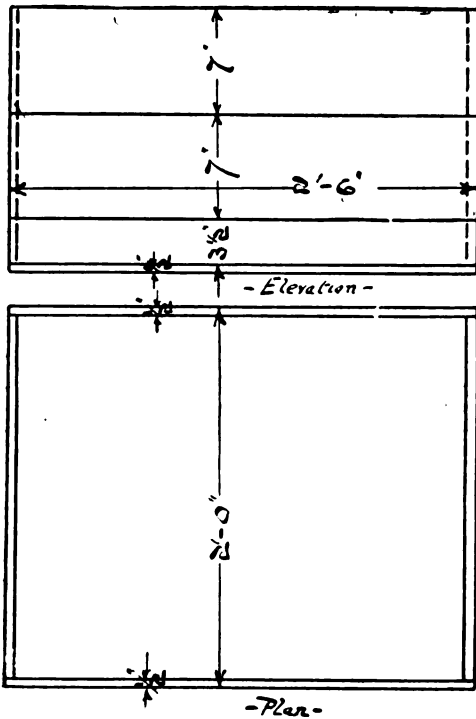


Fig. 2.

representing the packing-case in this way, its entire construction is seen to be represented clearly and adequately.

The next step is to consider how the sides may be joined together, and if the alternatives illustrated in Fig. 3 are given, the boys realise that if (b) is adopted, board 1 unites 5 and 6, 2 joins 4 and 5, 4 joins 3 and 2, and 5 joins 2 and 1; while if (a) is selected, there is nothing to lock successive "tiers" together unless the construction is complicated by the insertion of "fillets," as shown in Fig. 4. These fillets, it will be understood, may be either external, or internal as shown, but in either case some space is wasted. (Of course, it should be pointed out that, if the case is designed to carry weight, it may be necessary to add "fillets" and "bearers" even if the method of joining shown in Fig. 3 (b) is chosen. In these circumstances the class should be led to devise and carry out experiments in

order to determine where such bearers and braces may most conveniently be placed. In any case, it is desirable to experiment on the "holding power" of nails of various lengths when driven

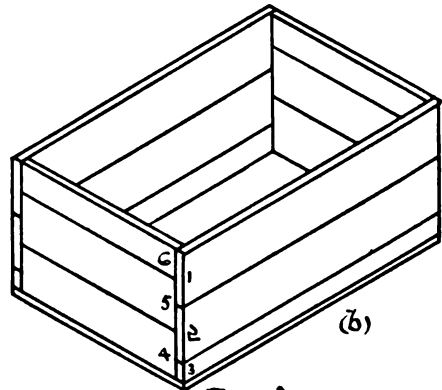
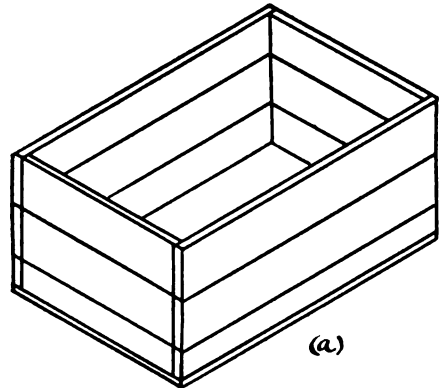


Fig. 3.

T.S.M.

into boards at different inclinations relatively to the grain. Such experiments are easily arranged so as to illustrate clearly all the points which should be observed when nails are to be used as a means of fastening two pieces of wood together, and the

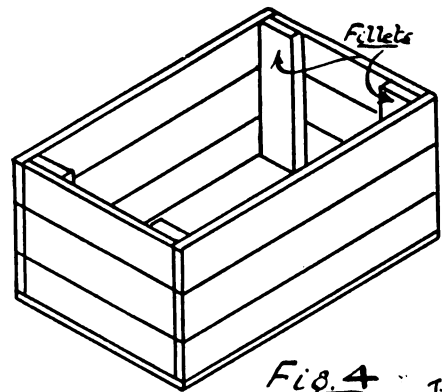


Fig. 4.

T.S.M.

boys take the keenest interest in this part of their work.)

The complete isometric view, as illustrated in Fig. 5, may now be drawn and the actual work of construction commenced. At this stage the writer suggests that the boys be permitted to



work together in small groups of three, four, or six, according to the size of the class, each boy in the group taking in turn the position of leading hand, or foreman, and being held responsible for the organisation of all work done on the box while he occupies the position, with the proviso that no step should be made without consultation between all the members of the group. The advantages of such a scheme as this are sufficiently obvious, and it is clear that some such plan must be adopted whenever large objects are being con-

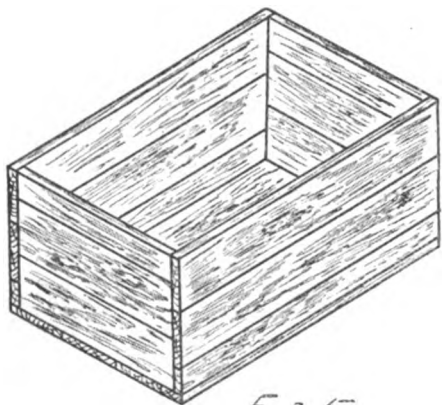


Fig. 5

T.S.U.

structed. The first step is for each group to determine the actual length of 7" board required for the whole box, and to "set out" economically the pieces necessary for sides and bottom with scale and try-square on the boards supplied, as illustrated in Fig. 6. The various parts are then sawn off—an operation involving both ripping and cross-cutting, during the performance of which much is to be learnt about the nature of timber as a working medium, about the use of the saw and its various modifications. The sides

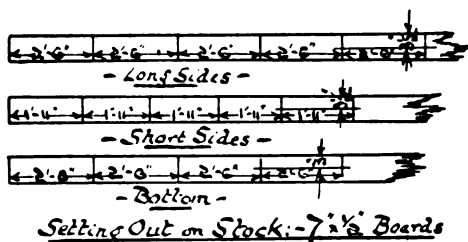


Fig. 6.

T.S.U.

are then nailed together with  $1\frac{1}{2}$ " or  $1\frac{1}{2}$ " wire nails and the bottom is fixed, thus completing the designed packing-case, which can be tested to see if it is "square," strongly made, and adequate for its purpose.

As such boxes occupy much space, it may be advisable to have them knocked apart by another set of boys soon after they are completed. The material is then available for use in other models or for smaller packing-cases, so that there is but little waste.

## THE ROYAL DOCKYARD SCHOOLS.<sup>1</sup>

By THOMAS DAWE, B.Sc.

Headmaster of the Portsmouth Dockyard School.

It may be safely asserted that the Lords Commissioners of the Admiralty were the pioneers, and the successful pioneers, of technical education in this country. A School of Naval Architecture was in existence at Portsmouth from 1811 to 1832, this school being for the instruction of young men, who might to-day be regarded as "articled pupils," and were guaranteed appointments to important positions in the dockyards on the satisfactory completion of their course.

The Dockyard Schools for the education of apprentices were founded by the Admiralty in 1843. Two important principles were laid down in connection with them, and have been observed ever since. They were (1) that the apprentices should be allowed some time during the working hours of the yard in which to attend school; and (2) that only those who distinctly benefited by their attendance should be given opportunities for receiving more advanced instruction. The subjects taught in the lower classes were of quite an elementary character, but provision was made for instruction in mechanics, hydrostatics, and mathematics in the more advanced classes, to be supplemented by instruction in technical subjects in the yard.

After the schools had been in existence for about five years, it was deemed desirable to make further provision for the education of the very best of the apprentices, and a school was established at Portsmouth for this purpose, it being known as "The Central School of Mathematics and Naval Construction." To this school the best of the apprentices from all the yards were sent, and although it had only a brief existence of five years (1848 to 1853), it numbered among its students two distinguished naval architects—the late Sir E. J. Reed and Sir N. Barnaby.

After this school was closed, there was a period of eleven years during which there was no provision in this country for the higher education of naval architects, although a widespread feeling existed that such provision was sorely needed. In 1864 the Admiralty founded the "Royal School of Naval Architecture and Marine Engineering," which was located first at South Kensington, and afterwards at the Royal Naval College, Greenwich. This school is still in existence, and has exercised a profound influence on shipbuilding throughout the world. Eight of its first batch of students were selected by competition from all the apprentices attending the dockyard schools. Included among these were the world-famous naval architects Sir W. H. White and Sir P. Watts, successive Directors of Naval Construction. Ever since 1864 one or more dockyard apprentices have been selected annually in the same manner to undergo this higher course of training.

<sup>1</sup> A paper read before the Educational Science Section of the British Association at the Portsmouth meeting, September 5th, 1911.

For about thirty years (down to 1889), engineer students were also educated in the dockyard schools, to prepare them for their subsequent work as naval engineers. Among these were Sir J. Durston and Sir H. J. Oram, successive Engineers-in-chief of the Navy.

The dockyard schools were reorganised in 1905 under the auspices of Prof. (now Sir Alfred) Ewing, Director of Naval Education. The courses in mathematics and mechanics were made less academic, laboratory work was introduced, and provision was made for lectures on technical subjects. It may now be claimed that the schools are thoroughly up to date; and what I shall next say relates to them as they are to-day.

The position of dockyard apprentice is one that is eagerly sought after in dockyard towns, as, at the worst, it furnishes a boy with a good trade, while, at the best, it may provide him with a very fine career. Hence there is always a good supply of well-qualified candidates. The entry is made by means of a competitive Civil Service examination the subjects of which are English, mathematics, elementary science, and drawing. This mode of entry reacts on the general education of boys in the dockyard towns, raising it to a higher level than in other similar towns.

Apprentices are given seven and a half hours per week in which to attend school, their total time there being twelve hours per week (two afternoons and three evenings).

The full course extends over a period of four years, but there is a "weeding-out" process at the end of each year, so that only the best of the apprentices take the full course. A few (from one to four) of the best of these are selected annually (by examination) from all the yards for a further three years' course of advanced instruction at the Royal Naval College, Greenwich, and those who qualify at the end of this course become members of the Royal Corps of Naval Constructors.

#### The subjects taught are as follows :

Practical mathematics (including trigonometry, co-ordinate geometry of two and three dimensions, the calculus, and easy differential equations); theoretical and applied mechanics (including strength of materials, mechanism, balancing of engines, and elementary hydraulics); heat and steam; elementary chemistry and metallurgy; magnetism and electricity; and machine drawing.

English history and composition are taught during the first two years.

Every apprentice works in the school laboratory for about two hours per week.

Lectures on naval architecture, or on marine or electrical engineering, are given to apprentices during their third and fourth years by constructors or draughtsmen employed in the yard, who are in touch with the latest developments of their subjects.

Fourth-year apprentices who attend school are given special facilities in the yard for acquiring a practical knowledge of the drawing appertaining to their trades. There are also evening classes in which drawing is taught to the apprentices in general.

When at work in the yard, each apprentice is placed under the charge of a workman of good character, who is required to supervise his conduct and to give him such instruction as may be necessary to enable him to learn his trade.

Apprentices pay no fees for attending the schools, and are provided with text-books and stationery free of cost, while they are paid their usual wages for the afternoons on which they are at school.

Each school is divided into two sections, an upper and a lower school, the latter being attended by the more backward of the apprentices. The course described above is that of the upper school.

The work done by the best of the apprentices during their four years' course is quite equal to that required for a pass degree in engineering at any of our universities. Moreover, the system is not a costly one, its total cost being probably much less than that of similar courses in outside technical institutes. The staffs are by no means large for the work done. Thus, in the Portsmouth Dockyard School, the number of apprentices attending the upper school is 180, but as they attend in two sections, there are 90 in attendance at the same time. These are taught by one headmaster and three assistants, one of the latter being wholly employed in laboratory work.

Of the various masters who have conducted the dockyard schools in the past, the names of two stand out conspicuously for the high quality of their work, viz., those of the late Mr. R. H. Rae, who was headmaster of the Devonport School for nearly thirty years, and of Mr. H. G. White, who served thirty-seven years as a dockyard schoolmaster, seventeen of them as headmaster at Portsmouth. The present managers of the constructive departments at Portsmouth, Devonport, and Pembroke were Mr. White's pupils.

No one can speak with higher authority of the value of the dockyard schools than Sir W. H. White, as he himself received part of his training in one of them (under Mr. R. H. Rae), and has been in constant contact with men who have been trained in like manner. Not long ago he said, "I have passed through the most thorough system of technical education which, in my judgment, exists at the present moment, and which is English from beginning to end."

At the distribution of prizes at the Chatham Dockyard School in November last, Dr. Macnamara, the Parliamentary Secretary of the Admiralty, read out a list of the distinguished men who had passed through the dockyard schools, saying that "it was one of the most remarkable lists he had ever seen, and was a most remarkable testimony to steady progress, grim determination, and tireless energy." This list contained the names already mentioned, as well as those of the first three occupants of the Elder Chair of Naval Architecture at Glasgow University, viz., the late Dr. Elgar, the late Prof. Jenkins, and Prof. Biles, and those of the highest

officers in the constructive department at the Admiralty and in the dockyards.

The dockyard school system has the following advantages over that of the ordinary technical institute:

(1) The students at the commencement of their course have all reached a good standard of general education.

(2) Their attendance is regular, being compulsory.

(3) A portion of the attendance is during the daytime, before the student is wearied by a full day's work.

That these advantages have borne signal fruit is shown by the fact that out of ninety Whitworth Exhibitions of the value of £50 each, awarded in national competition to students of engineering during the last three years, forty have been won by dockyard apprentices, leaving only fifty for the students of all the technical institutes throughout the country; and still more would probably have been won were it not that shipwright apprentices are debarred from competing. The competition for scholarships tenable at the Royal College of Science tells the same story, for out of seventeen scholarships in mechanics competed for during the last three years, thirteen have been won by dockyard apprentices.

The subsequent careers of the apprentices who have passed through the dockyard schools are extremely varied. A small number become naval constructors; a much larger number are appointed to fill the minor, but important, posts at the Admiralty and in the dockyards—such as those of foremen and inspectors of trades, and draughtsmen—for which a trained intelligence and a well-stored mind are of great value; others remain simple workmen to the end of their days; while a considerable number leave the Admiralty service altogether, thus enriching the national life in other directions.

It will be seen that in the system just described there is a happy blending of theory and practice; for while the apprentice is becoming thoroughly conversant with the practical side of his trade, he is at the same time learning the principles on which that trade rests; moreover, he learns his trade and the use of tools, not by practice in a college workshop, but by the far better method of working in a great manufacturing establishment. The same system is continued in the case of the small body of select students who undergo the higher training provided by the Admiralty; for while such students devote the winter term to their theoretical studies, they spend the summer in one or other of the dockyards in acquiring a sound knowledge of the practical side of their profession.

But perhaps the most characteristic feature of this system is that it affords an avenue to the boy of brains and energy whereby he can rise to the highest ranks of professional eminence. It opens the "career to the talents," and the private may feel that he carries a marshal's baton in his knapsack. A labourer's son who enters a dock-

yard as an apprentice may rise to the highest rank in the world of naval architecture or engineering, to the infinite gain of himself and his country; for there is no waste of national resources comparable to the waste due to undeveloped or misused natural talent.

## ON THE TRAINING OF BOY ARTIFICERS FOR THE ROYAL NAVY.<sup>1</sup>

By W. H. T. PAIN,  
Headmaster, H.M.S. *Fisgard*.

WITH the great change made in the training of officers and men in the Royal Navy in 1902, a number of boys were entered for training for the rating of Engine-room Artificers. For the first few months the numbers were small and the instruction was carried on at Chatham; but in 1903 the Admiralty established three centres of training, namely, (a) H.M.S. *Tenedos*, at Chatham; (b) H.M.S. *Asia*, at Portsmouth; (c) H.M.S. *Indus*, at Devonport. The system rapidly developed, and an instructional staff of engineer officers and schoolmasters was appointed to carry out the work, the whole being placed under an inspecting captain.

The next change was in February, 1906, when the *Indus* was appropriated for the instruction of mechanics. The boys from Devonport were divided between Portsmouth and Chatham. Recently (July, 1910) the *Tenedos* Chatham establishment has been removed to the *Indus*. So that there are now two establishments, namely, (a) H.M.S. *Fisgard* (late *Asia*), at Portsmouth; (b) H.M.S. *Indus*, at Devonport.

The *Fisgard* consists of four ships: the *Indus* of five ships. The numbers under training on August 1st were: H.M.S. *Fisgard*, 293; H.M.S. *Indus*, 267; total, 560.

The instructional staff for each ship consists of an engineer commander, two engineer lieutenants, a headmaster, two assistant-masters, and two instructors in mechanical drawing.

Candidates are admitted by (1) open competition, or (2) by service nomination, or (3) by competition limited to candidates recommended by certain education authorities. The limits of age are fifteen to sixteen years. There are two entries a year—one in July, the other in January—each ship entering eighty boys a year. The July entry is by open competition and service nomination, the number of the latter being limited to twenty each year. The competitive examination is held in May each year, and is conducted by the Civil Service Commissioners at the same time and in the same manner as the examination for dockyard apprentices. The subjects of examination include:

|   | Mark         |
|---|--------------|
| (1) Arithmetic ... ..                   | 350          |
| (2) English, including geography ... .. | 400          |
| (3) Geometry and algebra ... ..         | 300          |
| (4) Elementary science ... ..           | 300          |
| (5) Drawing ... ..                      | 150          |
|   | <b>1,500</b> |

<sup>1</sup> A paper read before the Educational Science Section of the British Association Meeting at Portsmouth, September 5th, 1911.

In May, 1911, there were 788 candidates for eighty places.

The candidates recommended by the education authorities are expected to have educational attainments at least equal to those boys who enter by open competition, and must have spent at least one year in a secondary school, or at least two years in a higher elementary school. These boys are entered in January.

Under a revised system recently instituted, all candidates who have been recommended for entry are required to undergo an examination which is conducted locally. This examination is to take place on the third Tuesday in October, and each authority will be responsible for arranging and supervising the examination of its own nominee or nominees by means of the questions which will be sent out beforehand from the Admiralty. The worked papers will be returned to the Admiralty for marking. The examination will consist of two papers on practical mathematics and elementary science, and is to be completed in one day, Paper I. being taken in the forenoon and Paper II. in the afternoon. The boys will be entered from a list drawn up in order of merit determined by the result of this examination.

This combination of entry by open competition and by the recommendations of education authorities of large towns and districts secures the entry of boys from all parts of the United Kingdom.

The period of training, originally four years, is now four and a half years. During this time the boys undergo a course of general and technical education, in addition to workshop training. The training and education of boy artificers is intended not only to make them good workmen, but to give them a real understanding of the machines they will have to handle and to make them ready, self-reliant, and resourceful. Accordingly, the boys are trained to approach subjects from the point of view of observation and experiment and to deduce their own conclusions.

The course of instruction is divided into two parts as follows:

**PART I.**—During the first two years the boys receive instruction in:

(1) Practical mathematics, including arithmetic, algebra, mensuration, geometry, and trigonometry.

(2) English—general grammar so far as necessary for correct composition. Great importance is attached to the writing of reports on the processes used in the workshops. A standard author is read each half-year.

(3) Elementary science, including heat. Special attention is given to relation of heat to work; properties of steam, including boiler efficiency and fuels.

(4) Mechanics. This subject is treated in a practical manner, with special reference to the mechanics of workshop appliances.

**PART II.** (covering 2½ years' work) comprises:

(1) Applied mechanics and electricity.

(2) Marine engines and boilers.

(3) Mechanical drawing.

These subjects are taught as nearly as possible to the requirements of the service. The boys on joining have a short course (ten weeks) of lectures in engineering, in addition to their instruction in school. They are then examined, and on the result of this examination the trades are allotted in the following proportion: fitters, 68 per cent.; boilermakers and smiths, 21 per cent.; copper-smiths and moulders, 11 per cent. Opportunities are afforded all boys, however, of obtaining an insight into trades other than their own, and also of making worked sketches so as to fit them to carry out all the duties of an engine-room artificer in His Majesty's Navy.

The general routine gives eight hours a day to the workshop, and three evenings a week of two hours each for school and technical instruction. The factory is well equipped with all the latest machinery and appliances for instructional purposes and for general repair work of the ships of the Royal Navy.

Examinations are held in May and November: these are (1) Admiralty and (2) local. The local terminal examinations are conducted by the instructional officers, the papers set and results being communicated to the Director of Naval Education. Boys are required to pass the Admiralty examination in Part I. at the end of two years' training, before going on to Part II.; and at the end of four and a half years to pass the Admiralty examination in Part II. and to do a satisfactory "trial" job to test workmanship.

Boys who fail to pass either in Part I. or in Part II. are discharged as a rule, unless special circumstances justify their retention, when they are re-examined after a further period of training. The papers set in Part I. include five papers, namely, (1) practical mathematics i., (2) practical mathematics ii. (3) heat and elementary science, (4) English, (5) mechanics; and in Part II., (1) engineering i., (2) engineering ii., (3) mechanical drawing, (4) applied mechanics and electricity.

Certificates are awarded first, second, or third class on the combined results of Parts I. and II. Boys who qualify are rated engine-room artificers fifth class, and are sent to sea-going ships for a period of practical sea experience. On completion of this training they may be rated acting engine-room artificers fourth class without further examination.

[At the request of the Editors, Mr. Pain has kindly supplemented his paper with the subjoined particulars as to the daily rates of pay allowed to boy artificers, each rate being for seven days a week:

|                      |     |     |     |     |     |
|----------------------|-----|-----|-----|-----|-----|
| First year ...       | ... | ... | ... | ... | 6d. |
| Second year ...      | ... | ... | ... | ... | 7d. |
| Third year ...       | ... | ... | ... | ... | 8d. |
| Over three years ... | ... | ... | ... | ... | 9d. |

Boy artificers on being rated:

|   |     |         |
|---|-----|---------|
| Engine-room artificer, 5th Class ...        | ... | 3s. 6d. |
| Acting engine-room artificer, 4th Class ... | ... | 5s. 6d. |

Engine-room artificers, fourth class and upwards, receive pay as follows:

|   |                 |
|---|-----------------|
| Under three years' service or 4th Class (including acting time) ... | 38s. 6d. a week |
| Above three years' service or 3rd Class ...                         | 40s. 3d. "      |
| Above seven " " 2nd " ...   | 42s. 0d. "      |
| Above twelve " " 1st " ...  | 45s. 6d. "      |
| { Provided he has re-engaged to complete time for pension.          |                 |

The pay of a chief engine-room artificer is:

|   |                 |
|---|-----------------|
| Under six years' service as chief engine-room artificer, or 2nd Class ... | 49s. 0d. a week |
| Above six years' service, or 1st Class ...                                | 52s. 6d. "      |

Artificer engineers rank with other warrant officers according to the date of their warrant; they receive a gratuity of £25 on promotion towards the expense of their outfit.

The pay is as follows:

|                              |                             |
|------------------------------|-----------------------------|
| Artificer engineer ...       | 59s. 6d. to 73s. 6d. a week |
| Chief artificer engineer ... | 80s. 6d. to 94s. 6d. "      |

Their pensions and widows' pensions and children's compassionate allowances are granted under conditions similar to those applicable to other warrant officers.

All the above rates of pay are in addition to free rations.]

#### PERSONAL PARAGRAPHS.

THE late Canon Duckworth began his public life as a schoolmaster. After a brilliant Oxford career he joined the staff at Marlborough College, and served as an assistant-master for three years (1857-60). Returning to Oxford as a tutor at Trinity College, he was afterwards appointed instructor, and subsequently governor, to the late Duke of Albany. I knew him as vicar of St. Mark's, Hamilton Terrace, and have never yet been privileged to come into contact with a more charming personality.

\* \* \*

MISS ANNIE HILL has accepted the appointment of headmistress of the Devonport Municipal Secondary School for Girls, which has opened this term with an attendance of 200 girls, whose ages range from seven to eighteen years. Miss Hill has had considerable experience as classical mistress at the Glasgow High School and the Bala Intermediate School. We hear that the governors anticipate a successful future for the school under Miss Hill's guidance.

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MR. JAMES BARNARD has retired from the post of head mathematical master of Christ's Hospital, which he has held since January, 1882. He was educated at St. John's, Cambridge, and was bracketed twelfth Wrangler in 1874. His experience included masterships at Berkhamsted (1874), Bedford Grammar School (1875-7), and Blackheath School (1877-81). It is probable that few men have done more or more excellent examination work in mathematics for public bodies than Mr. Barnard. During his tenure of office at Christ's Hospital a very large number of mathematical scholarships were gained by his pupils, and many of them were at Trinity and

St. John's, Cambridge. He was a strong man, with very clear ideas of what he wanted educationally. He could boast, as could very few masters who have done so much good work, that he had never published any school book.

\* \* \*

At the East London College, Mr. T. Harris, of the Imperial College of Science and the Cavendish Laboratory, Cambridge, who has been engaged in advanced research work under Sir J. J. Thomson, has been appointed lecturer and demonstrator in the physical department, and Mr. Philip Kemp has accepted the appointment of lecturer in the electrical engineering department.

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MR. C. F. MOTT, senior science master at Giggleswick School, Yorkshire, has been appointed by the Staffordshire Education Committee as assistant-secretary for higher education.

\* \* \*

THE REV. NORMAN TREWBY, assistant-master, Strand School, King's College, has been appointed headmaster of Preston Grammar School. Mr. Trewby was educated at St. Paul's School and at Hertford College, Oxford, and has had the ample experience of some twenty-two years of teaching. It is gratifying to see promotion following long years of faithful service.

\* \* \*

MR. SIDNEY JOYCE, who died recently, had been an inspector of schools and an examiner in the Education Department of the Privy Council. Born in 1834, he was educated at Westminster in the headmastership of Liddell, and went to Christ Church, where he became a student under the old régime. He took a first class in classical "Mods," and a second in Lit. Hum. For some time he was secretary to the Governor of Mauritius, and then an assistant-master of Westminster School. About thirty years ago he joined the Roman Catholic Church.

\* \* \*

A DISTINGUISHED Pauline has passed away in the Rev. R. B. Gardiner, late surmaster of St. Paul's School, who had retired from the school in 1909. He was born in 1843, entered St. Paul's School at the age of eleven, when Dr. Kynaston was high-master, and left in 1861 to go up to Wadham College as a scholar. He took a second class in both classical and mathematical "Mods," and a second in Lit. Hum. in 1865. For two years he was on the teaching staff of King Edward's School, Birmingham, and then went to Dulwich College to serve under the late Dr. Carver, who was himself an Old Pauline. In 1876 he joined the staff of St. Paul's, and served through the whole of Mr. Walker's high-mastership. He became surmaster in 1902. A keen Pauline, he interested himself in the history of the school, and his death removes the principal link between the old St. Paul's and the new.

THE new Regius professor of humanity at Aberdeen is Prof. Alexander Souter, of Mansfield College, Oxford. Born in 1873, he has had experience of three universities—Aberdeen, Cambridge, and Oxford—and has recently (since 1903) worked as Yates professor of New Testament Exegesis at Mansfield College, Oxford.

\* \* \*

I HAVE this month to record the death, in comparatively early manhood, of Mr. George C. Donington, senior chemistry master of the City of London School, to which post he was appointed some two years ago. Mr. Donington was nearly drowned on the Yorkshire coast towards the end of the summer holiday, and though it seemed he had recovered, he succumbed to septic pneumonia shortly after his return to London to begin his work again. Mr. Donington was educated at the Leys School, Cambridge, and Caius College, Cambridge. He held posts successively at Tettenhall College, the Central Technical College, Highgate School, Christ's Hospital, Horsham, and Leeds Grammar School before going to the City of London School. He was a frequent contributor to THE SCHOOL WORLD, and was the author of two successful school books on chemistry. He had a quiet manner and very genuine qualities, and to know Donington was to like him well.

ONLOOKER.

## THE TEACHING OF MATHEMATICS IN THE UNITED KINGDOM.<sup>1</sup>

By J. B. DALE, M.A.

Assistant Professor of Mathematics, King's College, London.

**A**PERUSAL of the first eight of the collection of reports which is being prepared for presentation to the International Congress of Mathematicians leaves upon the mind a vivid impression of the condition of unrest and flux of opinion which at present prevails with respect to aim and method in the teaching of mathematics. The task of the teacher even so recently as twenty years ago was comparatively simple compared with that which confronts him at the present day. At that time the influence of the older universities not only secured for mathematics a well-defined place in the curricula of secondary and public schools, but also determined the general character and scope of the instruction given in the subject; while the elementary schools confined themselves

to arithmetic, and found little room for difference of views upon the purpose or method of teaching this subject.

This comfortable condition of affairs was disturbed by influences emanating on one hand from the universities, and on the other from the industrial world. The vast and rapid strides in the accumulation of knowledge made during the latter part of the nineteenth century gave rise to sciences which could not be taken under the sheltering wing of classics, philosophy, or mathematics, but demanded recognition by the universities as separate and self-contained subjects of study. At Cambridge the primacy of mathematics was assailed by experimental science, and the success of the assault is measured by the changes which have been recently introduced into the mathematical tripos. The weakening of the position of mathematics at its headquarters could not fail to impair likewise the position it held in the schools, and there was danger of it being in many cases placed amongst the non-essential or optional subjects. It is hardly too much to say that its retention as a necessary part of every ordinary school curriculum is due to the fact that those very subjects which in the first instance most seriously assailed it find themselves becoming more and more dependent upon it for their own further development. Physics and mathematics have been closely related from the very beginning, but the connection with chemistry is of more recent date, while the application of mathematics to biology and psychology has been made only within the last decade.

Another cause of disturbance to the traditional methods of teaching was the development of engineering and the establishment of technical schools. From these arose a demand for instruction in mathematics of a somewhat specialised type; although it must be remembered that while a very moderate equipment satisfies the needs of the majority of those engaged in technical and industrial pursuits, it is impossible to indicate any branch of mathematics which may not prove to be of use in the solution of the problems presented by civil, electrical, or naval engineering.

The net result of these movements has been to assure the position of mathematics as an essential part of the educational course of the majority of boys, but at the same time it has rendered necessary a drastic revision of syllabuses and a reconsideration of methods of teaching. It cannot be said that finality in either of these matters has yet been reached. Many will agree that the revolt against Euclidean geometry has gone too far, and that much good squared paper has been wasted in futile graphing. There will doubtless be numerous oscillations of opinion before a fairly stable position of equilibrium is attained. The reports before us are characteristic of this transition stage in English education. It may be said without any tinge of disparagement that they are of the nature of reformers' manifestoes. Practically all imply dissatisfaction with the methods of teaching either at the present time or until quite

<sup>1</sup> The Teaching of Mathematics in the United Kingdom; being a series of Papers prepared for the International Commission on the Teaching of Mathematics.

No. 1. "Higher Mathematics for the Classical Sixth Form." By W. Newbold. 14 pp. 1d.

No. 2. "The Relations of Mathematics and Physics." By Dr. N. G. Filon. 9 pp. 1d.

No. 3. "The Teaching of Mathematics in London Public Elementary Schools." By P. B. Ballard. 28 pp. 2d.

No. 4. "The Teaching of Elementary Mathematics in English Public Elementary Schools." By H. J. Spencer. 32 pp. 2d.

No. 5. "The Algebra Syllabus in the Secondary School." By C. Godfrey. 34 pp. 2d.

No. 6. "The Correlation of Elementary Practical Geometry and Geography." By Miss Helen Bartram. 8 pp. 1d.

No. 7. "The Teaching of Elementary Mechanics." By W. D. Eggar. 13 pp. 1d.

No. 8. "Geometry for Engineers." By D. A. Low. 15 pp. 1d.

The Board of Education Special Reports on Educational Subjects. (H.M. Stationery Office.)

recently in vogue, and make more or less detailed suggestions for improvement.

In the first of these reports Mr. Newbold deals with the teaching of higher mathematics to the higher classical sixth form. He says:

I would repeat with emphasis two facts. In the first place—as has been pointed out again and again in recent years—the last half-century has seen a greater enlargement of the encyclopædia of human knowledge than any previous period of history, and there has been no abatement of the rate of increase in the last decade. That enlargement has been almost entirely due to the expansion of the frontiers of science, not merely in new territory of her own, but also in the imposing of her suzerainty of scientific method on old-established departments of human culture. And in the second place we have the classical sixth-form boy—the most cultivated product of the public school—passing out into this altered world with an educational equipment almost unaltered from that of fifty years ago. Cannot we give him some share in this new heritage of culture? Mathematics has been justly called the mother of the sciences, and certainly scientific method is only another name for mathematics. Under present conditions, at the time when his mathematical work is on the point of widening out into new channels of living interest and far-reaching import, when the boy's mental outlook is reaching that maturity that would specially help him to appreciate and profit by some study of the higher branches of the subject, just at this point—more inviting and fruitful, if he only knew what awaited him, than any previous stage of his career—he turns his back on mathematics for ever. Mathematics has its "classics" no less than literature. Surely the classical authorities will not grudge a few hours weekly for devotion to the science which has called forth the greatest achievements of the human intellect.

Side by side with the above forcible statement we may place Prof. Love's dictum: "The principles of the differential and integral calculus ought to be counted as a part of the intellectual heritage of every educated man or woman in the twentieth century, no less than the Copernican system or the Darwinian theory." There is little doubt that England's notorious neglect of science is due largely to the fact that the most articulate members of the community, the leaders in journalism and politics, receive an education almost exclusively classical; in Mr. Newbold's words, "they are doomed to remain equipped for life with only the meagre rudiments of arithmetic, algebra; and geometry, and perhaps a smattering of trigonometry." Higher mathematics and its applications are to them a sealed book, and there is no wonder that they regard them as of little importance and value.

Mr. Newbold records the result of a year's work with some half-dozen boys at Tonbridge School, and he appears to have achieved considerable success in enlarging their mathematical horizon principally in the direction of the concept of functionality.

In passing, we would express a desire that a reciprocal arrangement could be made whereby boys reading for mathematical or science scholarships might be enabled to continue their classical

and literary studies up to the end of their time at school. Such an arrangement would do much to counteract that lack of culture noticeable in some of the science graduates of the newer universities, and the want of lucidity in scientific writing to which Dr. Miers has recently directed attention.

Dr. Filon writes in a somewhat pessimistic strain regarding the present position and future prospects of mathematical physics:

During the last century the mutual relations of the sciences of mathematics and physics were characterised by a very close harmony. The creation of the sciences of thermodynamics and of electromagnetism, and the unification of optics with the latter, have been among the chief triumphs of this alliance of the experimental and the analytical methods. At one time these successes even led some thinkers to imagine, somewhat prematurely perhaps, that all the problems of the universe were capable of being put into equations and solved by the methods of dynamics.

Signs are not wanting that this deep and fruitful harmony is at the present day being gradually weakened. The traditional sympathy, of course, remains, and no one doubts that physics still requires mathematical methods, in order to reduce its theories to order. The trouble is that nowadays mathematical methods, which in the past were stimulated by the need of the physicist, no longer appear to respond to that need. The tendency is growing to separate mathematics as far as possible from its physical substratum, to refine away all appeals to intuition and experience, and to expend the energy of the researcher upon ideas and concepts increasingly abstract.

Very few papers on mathematical physics nowadays suggest new or powerful methods. Certainly our generation has seen nothing comparable with the theorems of Fourier, Green, or Stokes.

A closer analysis leads Dr. Filon to ascribe the growing estrangement of mathematics and physics to (1) the tendency of mathematics to become metaphysical, a tendency which frightens into hostility many young physicists who, as a result, lack the training necessary to develop mathematical methods for themselves or use existing ones with safety; (2) the increasing volume of physical material, physical terms, and physical theories, which make it increasingly difficult for the ordinary mathematician to apply his mathematical knowledge to physical problems; and (3) the growth of electrical as contrasted with what may be called mechanical dynamics. A consequence of the growing estrangement has been the gradual decline and collapse of applied mathematics as a degree subject in most universities. Dr. Filon considers that the remedy for this condition of affairs is to be sought in a sound, broad, up-to-date curriculum of applied mathematics, backed up by a series of progressive books on modern lines, a curriculum which shall concern itself with really practical problems and not with intellectual gymnastics.

The third and fourth pamphlets deal with the teaching of mathematics in elementary schools. The wider reference implied in the title of the second paper is somewhat misleading, as, like the first one, it deals solely with the condition of mathematics in schools within the London area.



It seems unnecessary to make lengthy reference to either of these papers, as they cover much the same ground as the report summarised in THE SCHOOL WORLD for last September.

On the whole, the writers are in agreement, although Mr. Ballard is somewhat more conservative and is inclined to criticise more severely some of the methods of teaching at present in use than Mr. Spencer appears to be. The most notable divergence of opinion is that manifested with regard to arithmetic in infants' schools. Mr. Spencer maintains that the essential work of the infants' department is "that young children shall obtain, hold, and use intelligently the fundamental ideas and processes of number." On the other hand, Mr. Ballard says: "I have very grave doubts whether number should be taught at all to children below seven years of age. I have many reasons for thinking that such instruction involves a wastage of teaching power and a stunting of the growth of child intelligence." This danger of premature forcing of the intellect probably exists at all stages. As presenting the other side of the shield, it is interesting to recall a remark made by Prof. G. G. Ramsay regarding the teaching of Latin prose at Glasgow University. "Nothing is more surprising," he says, "than to see the freshness and vigour with which students who have had little or no advantage of early training apply themselves to the higher scholarship, and to note the leaps and bounds which mark their progress." When subjects are taught too early, it is the late-comers who win the race.

Mr. Godfrey's paper on the algebra syllabus in the secondary school merits very full and careful consideration by all teachers. He divides mathematical pupils into three classes:

I. Boys reading for mathematical honours.

II. Boys who look forward to a career which requires mathematics to be one of the main subjects of education.

III. Boys studying mathematics as part of a general education.

He contends that the course of algebra teaching usual in this country sacrifices the interests of the non-specialist boys in Class III. to those of the specialist boys in Classes I. and II., and he suggests remedies for this state of affairs.

It appears to be a matter of pressing importance that this question of the non-specialist mathematical curriculum shall be taken in hand at once. What we need is a curriculum of admitted educational value, a value that shall be admitted not merely by mathematicians, but by the great body of educated men. This is not a question that can be settled by mathematicians alone in a high-handed way. We must carry public opinion with us; we have to convince people that the curriculum can, and will, be recast in such a form as to provide an indispensable element in education. If we can do this, mathematics will no longer be dependent upon the protection afforded by a precarious university regulation.

There can be little question that, if the compulsion applied by the universities were removed to-morrow, the time given to mathematics at many public schools would

tend gradually to be reduced to a vanishing point. Public schools are governed, in the main, by classical men, and many classical men regard the time they spent over mathematics as time wasted. "Many of us still smart with indignation at the hours which we were compelled to spend in learning by heart the first two books of Euclid, and though he has since been deposed from the eminence which we always grudged him, the tyranny is by no means overpast. We are repeatedly told that there are young scientists whose early life was blighted by having to read the Apology in a crib, but why is no sympathy ever expended on those upon whose early years there fell the transient but blighting shadow of  $x+y$ ?"<sup>1</sup> This is the opinion of many able men of literary tastes. That such an opinion can be held widely points to the conclusion that "something must be done."

The essential features of Mr. Godfrey's scheme are that all the work in algebra should be done with the view of developing the idea of functionality, and that for the non-specialists all parts which cannot be brought into close connection with this idea should be thrown overboard.

We ought to get away from paper and blackboard altogether, and weave the idea of functionality into the pupil's conception of the outside world. This should be easy, for everything is in motion; and probably any two measurable things we like to name are connected functionally. At any rate, there is no difficulty in choosing undoubted cases of functionality from the objects around us. The barograph shows the pressure of the atmosphere as a function of the time; the algebraical form of the function is unknown; if it were known we could predict the weather. All infallible prediction, in fact, depends on a knowledge of the mathematical form of the controlling functions. A boy would like to know what function his height is of his age; but of this he must remain ignorant. But we can tell him his expectation of life as a function of his age; not perhaps as an algebraic function, but rather as a function in the form of a table or a graph. The daily papers supply plenty of examples of this type. For algebraic functions we must resort to simpler matters. The distance you walk at four miles an hour is a function of the time (simple proportion; why not draw an occasional graph as well as work sums on this subject?); the time needed to finish a job is a function, *ceteris paribus*, of the number of men employed (inverse proportion); given the principal and rate of simple interest, the amount is a function of the time (neither simple nor inverse proportion, but a new kind of functional relation).

The main point throughout is to insist not only on the static but the dynamical aspect of quantitative relationships. Arithmetic and algebra have in the past been too narrowly preoccupied with the static aspect; the problem has always been to *determine values* satisfying given conditions. This, of course, is a very necessary thing to do, and is never likely to fall into neglect. This determination of values I am calling "statical," in contrast to the "dynamical" discussion of the *relationships between variables* connected functionally.

The subjects to be omitted from the non-specialist course are:

Formal proofs of fundamental laws.

Factors beyond the quadratic type.

<sup>1</sup> Letter to *The Times*, December 29th, 1910, by the headmaster of Shrewsbury School.

Fractions (except those with monomials or linear denominators).

Highest common factor.

Long multiplication and division.

Simultaneous linear equations in three unknowns.

Literal equations (except in connection with formulæ).

Square root of polynomials.

Progressions.

Formal proofs of index laws.

Complicated exercises in fractional and negative indices and surds.

Simultaneous equations in which both equations are of quadratic or higher form.

Remainder theorem.

Imaginary and complex numbers.

Theorems on ratio and proportion.

Theory of quadratics.

Permutations and combinations.

Scales of notation.

Binomial, exponential, and logarithmic series.

Artificial and "elegant" manipulations and devices.

Mr. Godfrey believes that with the course so lightened there would be time for taking up other subjects, and the three he would introduce are :

(1) Numerical trigonometry.

(2) Mechanics.

(3) Infinitesimal calculus.

It will be seen that Mr. Godfrey and Mr. Newbold are in agreement as to what ought to be the goal of an ordinary school course in mathematics.

Miss Bartram, headmistress of the County Secondary School, St. Pancras, advocates the correlation of practical geometry and geography. It is not stated whether the scheme of work outlined is actually followed at any school, and we are far from being convinced that the results would at all repay the time and labour which would have to be given to it. The desire for concreteness and realism in education seems in danger of being pushed to an extreme which leaves little room for the exercise of the child imagination.

In the paper on the teaching of elementary mechanics Mr. Eggar states that the quantity of practical work necessary for a mathematical boy varies inversely with his ability. "For the best mathematicians it may be sufficient to see the thing done once. Their imagination will grasp the laws quickly, and very little practical work is wanted. With others it may be necessary not only to let them see the experiments, but to let them perform the practical work themselves." The principle here enunciated seems to us to be one which indicates the proper position of practical work in the teaching of such subjects as geometry and geography. The other matters discussed in the paper are: (1) the age of beginning mechanics, (2) its relation to trigonometry, and (3) the question of taking statics or kinetics first.

In the eighth of the reports Prof. Low sets out in considerable detail a course of geometry for engineers. Although a considerable part of such work is not likely to be taken before the student proceeds to college, it is desirable that those who are engaged in teaching geometry to

pupils who are looking forward to becoming engineers should know what of the earlier parts of the subject are regarded as essential. How much more should be added will depend upon circumstances, but Prof. Low urges the teacher to keep in view the great educational value of a course on geometry properly taught, and not to give undue consideration to the question of practical utility.

The following extracts from the report deserve attention :

In this paper geometry is being considered from the engineer's point of view, but the writer would venture to suggest that in connection with the mathematical department of every school and college there should be a drawing office which should be to that department partly what laboratories are to the chemical and physical departments. By mechanical drawing is here meant, not machine drawing, but the drawing of geometrical figures, and the working out of geometrical problems with mathematical instruments on paper. It is rather curious that the tools which are called mathematical instruments should be used to such a small extent as they are by mathematicians.

It has already been indicated that the student has commenced his study of the principles of geometry as contained in the first book of Euclid or a modern equivalent of it. Throughout his study of this book it is most important that the student should have ample practice in the solution of riders. There are two good reasons for this. First, because of the splendid training which it gives to the reasoning and inventive faculties, and, secondly, because there are numerous riders to the propositions, which are quite as important as the propositions themselves, if not more so. These remarks on riders apply to the whole of the student's course in geometry.

Up to the fourth book of Euclid the student in studying the principles of geometry has demonstrated the various propositions, excepting, perhaps, the theorems of Euclid's second book, in the rigorous manner required by the mathematician. He has also by mechanical drawing confirmed the demonstrations of certain propositions, and has, on the drawing board, made numerous and in some cases elaborate applications of the principles which he has studied.

In the further study of geometry the average engineering student should not be required to give rigorous geometrical proofs of all the propositions brought to his notice. There is yet a considerable amount of geometry which the engineering student must know, and he must be convinced of the truth of the theorems and the correctness of the constructions in the problems which are placed before him. But the demonstrations should now be abbreviated as much as possible, and any method allowed which will convince the student. In some cases it may even be sufficient that the student should test the truth of a proposition by actual mechanical drawing.

*Puppets. A Work-a-day Philosophy.* By George Forbes, F.R.S. x+183 pp. (Macmillan.) 3s. 6d. net.—This is a pleasant book to read, and leaves the impression that, after all, life is worth living. The narrative, though slight, serves as an excellent jam to disguise the by-no-means unpleasant powder of philosophy as it is explained by the heroic James Gordon. Many readers who follow the conversations of the delightful people making up the house-party at Knock Castle will decide to take up the more serious study of philosophy.

## THE SCHOOL GARDEN AS A MEANS OF EDUCATION.<sup>1</sup>

By ALEX. LOGAN,

Head of the Supplementary Department, Gordon Schools, Huntly.

IN all education the pupil is naturally the first consideration; and in the supplementary department, especially in a centre where higher education is free, the teacher has to deal with the normal, average boy, the boy who is our future tradesman in embryo; the boy who, ere ten years are gone, is to be a unit in the most numerous and powerful class of the community—the class upon whose skill, thoroughness, and common sense depend the comfort, prosperity, and health of the community. Considered from this point of view, the industries deserve just as much attention from educationists as the professions, no more, no less; for when we are able to decide which is the more important in the life of a community, only then can we decide which should receive the greater amount of consideration.

In Scotland to-day we have scores of higher-grade schools giving a better preparation for the professions than universities gave twenty years ago, so great has been the thought and labour expended upon the education of pupils about to enter upon the higher activities of life. Whether similar advantages have been extended to those who must enter upon an industrial life I leave anyone to judge. We are only at the initiatory stages in the study of this branch of education; and the first step was taken when it was viewed as unfair to a boy with an industrial future to nail him down to the three R's, to cut off his school existence from the actualities of life, and insist upon his intelligencing only, when he should be experiencing as well. It is naturally considered greater wisdom to attempt to lead the boy into the fullest relations of which he is capable with the world in which he lives. Secondary education has this as its aim; why should not also the work of the supplementary department? For several generations we have been obsessed with a fear of illiteracy in the case of the future working man, and in our emphasis on this the result has been that an even more-to-be-dreaded canker has made itself evident—the curse of incompetence. Ask the employer of the working man, and you will find that competency, efficiency, is what he looks for, an efficiency the result of which lies in manual dexterity combined with that alertness of mind which results from a careful study of the laws of nature as exhibited in each man's daily tasks. And the school has for ages been giving the boy little save what tends to culture. Not that it is intended to minimise the value of the latter for a moment; but why make it all-important and leave the other unstudied? If we are in any way to train the future man of industry along the lines of efficiency, some form of practical work is necessary—practical work which will allow attention to be directed, not only to the actual practice, but to the principles which underlie each separate operation performed.

It will be readily allowed that the substance of books is not necessarily educative to the working man any more than it is to those of the so-called professions. Books and school subjects are merely possible nutritious matter; education comes only in the stretching out of the mind and the subsequent assimilation. The working man must of necessity find most of his real education in his daily work, as most of us unconsciously do; and it is to be feared he

has but little cause to thank his early schooling for much help. His very work has been the means by which he has become a thinking man; and within the last dozen years the educational world has come to see that the same means may well be employed in education. The working man of to-day is beginning to realise that the schooling he received as a boy has not benefited him much in his ordinary industry, and he complains that his boys are being kept too long at school, where they receive but small preparation for the affairs of real life. And unless the school advances to meet modern requirements, unless it attempts to fit a boy to act well his part in the modern industrial world, the old faith in the school, one of the finest characteristics of Scotsmen, is bound to weaken and to decay—at least among the industrial class. And the fault will lie, not with the working man, but with the School Boards and teachers.

So much for the study of the pupil and his needs. Turning to examine garden work as a means of educating him, we find good logical reasons for using it as supplementary to a subject already holding a prominent place in school work. Not many years have passed since nature-study was admitted to a place in the curriculum, and to-day no one questions the educative value of the subject. It is an acknowledged law in psychology that we do not give much attention to that which is wholly familiar; and surely to cause the pupils to examine with awakened interest things which have always been too familiar to arrest their attention, and to bring their minds to dwell on these, is making an approximation to the ideal education—is leading them to a fuller relation with the world around them.

But, when viewed carefully, nature-study is found to have one evident defect—while certainly calculated to train the senses, it is continually stirring up interest without directing it towards some definite achievement. Now in the experience of the individual and of the race there is always some reason for observation-taking: the teacher observes his pupil in many lights that he may know how to work him, the farmer watches weather signs that he may decide about his sowing and reaping; but nature-study as it at present stands has no evident outlet beyond itself, has no definite motive; for, having observed, recorded, and perhaps made deductions, the pupil can go no further. And besides, even this very interest which we have said nature-study stirs up is, as such, of but small educational value. It is merely an attitude of mind.

Take the average boy to an engineer's shop; he will stand for an hour on end watching the wheels go round. Question him—he has not got past being interested, has not troubled about "how" or "why"; and this interestedness is merely a mental attitude which may or may not carry him further. The educational worth of interest, as Prof. Dewey says, is really in the leverage it gives, not in the achievements it represents. Achievements are yet to come.

Here, then, is the place for school gardening; here is nature-study combined with activity which is useful and productive—nature-study combined with something of economic importance with regard to the future of the pupil, where the processes are largely under the influence of the boy, and where he sees in tangible actuality the result of his work and thought. This granted, the logical conclusion is that nature-study in any part of the school, without some work in the actual growth of plants, where the pupils influence the results, is educationally incomplete.

But this alone would not be sufficient reason for all the time and trouble expended upon this form of school work in the supplementary department. A deal more is looked

<sup>1</sup> A paper read at a demonstration of school gardening arranged in August, 1911, for the benefit of teachers, by the Aberdeen and North of Scotland College of Agriculture.

for. Altogether apart from the acquisition of manual dexterity, that in the very doing of practical work by a boy under sixteen there is brain development is already recognised in modern education. The creed is almost universally accepted; and the result is seen to-day from the highest to the lowest classes in school; from practical work in experimental science and geography in Leaving Certificate classes to paper-cutting and kindergarten work in the infant department. Everyone allows its value. On the other hand, no one who has kept abreast of educational literature can fail to be aware of the advantages peculiar to school gardening from another point of view, as recorded by men of experience in both England and America—that it trains pupils in habits of thought, neatness, and industry; that precision, honesty, and self-reliance are encouraged; that judgment is strengthened; all these are results accredited to school gardening by those who know. But the practical teacher is somehow dissatisfied unless, apart from psychological reasons for its introduction, apart from character-forming qualities, the work which he sets the pupil to perform gives him, first, an opportunity to link it on to other school subjects, and, secondly, a direct means of access to the intellect of the boy so as to make him think on the spot. In other words, the teacher likes to feel that each thing the pupil is set to do or study is an integral part of the general whole of the lad's education, and he loves above all other things in school that direct flint-to-steel response on the part of the intellect of the pupil to his prompting.

To consider these in order. It is taken for granted that correlation of subjects is to be desired, that should school gardening give rise to any questions in arithmetic or experimental science, the scheme of work in these subjects should be so modified as to embrace these points, and *vice versa*. Not that all subjects of the curriculum should centre round school gardening—by no means; but when this form of practical work is introduced there should be such changes in the work done in other subjects as will make gardening an integral part of the regular school life to the boy, not an isolated subject which may or may not be treated seriously, according to whether the boy has an aptitude for it or not. Every year additional points of contact are being found between the subjects of the curriculum; and what I give is merely an indicative, not an exhaustive, account of what is being done here in this connection.

All three classes of the supplementary department here benefit from the questions in practical arithmetic which arise, from the measuring and drawing to scale of garden and plots, calculation of area of plots, finding how much of each kind of seed each pupil should receive for a row 9 feet in length, in Class I., to the calculation of cubical contents of manure heap and barrow, finding the percentage of germinated seeds, and plotting growth curves, in Class III. The experimental science of the second and third years is now practically applied in the garden, for what the pupils learn in the laboratory under their science teacher they find use for in next week's gardening lesson, or *vice versa*. Geography is certainly one of those subjects which gain substantially. The question of "Whence came our garden soil?" naturally leads to "river-valleys" and "mud-fields" in the world's history, to "prairie lands" and "black soils." Seed-sowing time is most suitable for lessons on the "seeds" of importance in commerce and the trade in each in Britain; while at this period of the year we discuss the agricultural operations being performed in India, Australia, Canada, and Argentina at the time, and work out the effect on the world's supply. A week of rainy weather, which retards garden work, brings the rainfall chart into prominence, with the

result that the pupils produce their climatological charts of the world, and we work out such questions as: "Why is Skye wetter than Aberdeenshire?" "What is the usual result of the backing of the wind?" "How is it true in Scotland that a rainbow in the morning is the shepherd's warning?" The two subjects touch at innumerable points.

As I have explained, all this is merely indicative; but enough has been said to show that this is no new subject introduced into an already overcrowded curriculum, but rather a means of giving interest, actuality, life, to many subjects.

Let me deal a little more fully with the second point mentioned, namely, that the teacher feels that for absolute justification in being made part of school work, gardening must show that by it there is a possibility of making the pupils think. A common remark of the casual visitor to this school is, "And you train the boys to be gardeners?" or something to that effect. At first I gave an indignant denial to such questions; but soon I found that this was looked upon as an attempt at humour on my part, and now to all such remarks I meekly answer "Yes."

It is not yet generally realised that school gardening is not a *subject*, but a *method*, of education; that its main purpose is not the growth of a cabbage, but the intellectual growth of a boy; not the training of a gardener, but the training of a mind. The garden is merely the apparatus employed, just as maps are in geography, and laboratory requisites in experimental science; not the items of information obtained from a map, not the scraps of scientific knowledge gleaned in a school course are the justification for these subjects being made a part of school work, but rather the mental processes necessary on a pupil's part in observing accurately, in drawing inferences from his observations, and in stating in clear and concise terms how he has arrived at his inferences. Similarly, the success of gardening as a school subject is not to be measured in bushels of potatoes or in pints of peas, but in the growth of the boy in mental stature as he sets about to further the production of these crops.

Had the teacher but to consider how he should teach the boys gardening, his business would, within limits, be comparatively simple. But gardening has two aspects, one for the gardener as a gardener, another for the teacher as a teacher. To the gardener the subject-matter is self-contained; he has not to travel beyond it, or if he does it is with the view of obtaining more facts to make his gardening more perfect. With the teacher the point of view is different and the outlook broader. What he has to look to are the ways by which gardening may become part of the pupil's experience; what there is in the pupil's present stage of experience that may be usable with reference to it, and how his own knowledge may assist in interpreting the pupil's needs and in finding the exact position in which the pupil should be placed in order that his growth may be properly directed. It is not so much the actual working of the garden which calls for his greatest mental exertion as the principles underlying each separate part of the work, and it is these he must make use of if, apart from mere observation-taking for the sake of furthering the growth of crops, he is to use the garden from a truly educational point of view.

Let me take a few examples by way of explanation. Consider the many different tasks performed day after day in the garden, the actual doing of which is quite familiar to rural pupils, but of the scientific significance of which they are absolutely ignorant. The boy is using a spade. He has used it perhaps dozens of times before, and is familiarly acquainted with the method of handling it. But

ask him to analyse the actions necessary. Let him take a load on the spade, and, while he uses the right hand as a fulcrum, direct him in the change of position of his left. He is making acquaintance with one of the laws of levers. Substitute a spring balance for his left hand, let him see that the force he is exerting can actually be measured, and even a boy of twelve will grasp the broad principle in little time, and, what is of vital importance, will realise that it can be made of practical use to him in his work. Similarly, the placing of a load on a barrow lends itself to like examination. More exact demonstration can follow, and questions on arithmetic based on this are surely of as much use as complicated work in decimal fractions to these boys, who in all probability will measure in eighths and sixteenths of an inch all their days.

To take another illustration; early tulips are protected at night during May with mats. (Boys attended to this night and morning here, even during week-ends.) Now the practical gardener says this is done to keep the frost from the plants. So it is, broadly speaking; but for the teacher this is not enough. The opportunity is too obvious to let slip, and he enters into the subject of radiation from soil and plants, the consequent loss of heat, and the lowering of the temperature even to freezing point. On the spot he applies the principle more widely; he deals with earth radiation, he recalls facts of geographical phenomena, and what was begun in the bulb plot in the garden may be finished in imagination in the Sahara Desert or the central wastes of Australia.

Again, the pupil, without being told, pats the seed-bed with the back of the spade after sowing the seed. He has seen it done before; he may have the idea that it is done because thereby the garden is made to appear more tidy. But let the teacher take two boxes of equal size and weight, fill them with the same weight of dry soil, give them an equal volume of water, press the surface of one well down, and leave that of the other loose; expose both to sun and wind for a day or more, according to weather conditions, and examine. It is now found that one box has a good supply of moisture in the surface layer; the other has none, or practically none—and the surface layer is where the seeds lie. The pupil now sees the reason for his act. And then, when the seedlings are above ground, he is told to do the very opposite of what he had formerly done—to use a digging stick or hoe in order to loosen the surface layer of the soil. Questioning will show that he knows that it is no longer important that the surface layer should contain moisture; the roots of the plants have penetrated more deeply. But then, he wonders, what advantage is gained by keeping the surface loose?

A rough experiment similar to the last will show him the principle underlying. Two boxes of similar size, shape, and weight are filled with the same weight of dry soil. Each receives an equal volume of water; they are left to drip for twenty-four hours or so, when their weight should be the same. The surface of one is then stirred up to the depth of a couple of inches; that of the other is left untouched. They are placed in an exposed and, if possible, draughty situation, and daily weighings are taken for a week or longer. The difference in weight will show that the earth the surface of which has been stirred up has lost less water by evaporation than that which has been left unstirred, the two inches of loose soil on the surface being less suited for the ascent of moisture than that of the other soil, the particles of which are more closely packed. By these two rough experiments the way is open to the teacher to enter upon the subject of capillarity in the soil, and the pupil sees the results of the operation of another great law

of nature, and, more important still, realises that he can use this law to bring about desired ends.

But almost every phenomenon and operation of the garden is capable of similar examination. By the use of tiles of different heights, by a covering of glass in strong sunlight, the value of the sun as a life-supporter and a life-destroyer can be well studied. The value of good ventilation can be seen in the case of well and badly thinned plants—excellent opportunities of using natural phenomena in connection with instruction in laws of health. The folly of working wet soil can be shown by taking three pots of garden soil, one dry and well worked, one wet and well worked, and one wet and unworked. These are left for a week or so, and when the soils are turned out the pupils see at a glance where the danger lies. The use of a hedge or wall protection from moisture-absorbing winds can be shown by placing in an exposed place equal volumes of water in a pail and in a plate, and measuring after the lapse of a week. When a boy is seen carrying one large pail of water instead of two medium-sized pails, the opportunity of dealing with the subject of economising of effort is obvious. The danger of watering plants in strong sunlight, the earthing up of potatoes, the removing of soil from around shallots, the digging of the soil, the application of manure, the rotation of crops, annuals not being allowed to seed early so as to ensure a lengthened period of flowering, the pruning of trees and bushes to further the growth of fruit, the thinning of fruit that what is left may be better; but the list might be extended at pleasure; almost every operation lends itself to the teacher's needs. And ever his point of view is: "What does this mean?" "Why is it thus and thus?" "Why is it as it is?" And his aim, to encourage such an attitude of mind on the part of the pupil.

All this, of course, is apart from the ordinary work in nature-study in connection with the growth of plants, and, as I have said, what I have given is merely indicative. As the Huntly school garden, though one of the oldest in the north of Scotland, has been in operation only about four years, even an approximation to finality of knowledge in this branch of school work can hardly be looked for here; but when in the future, from all the School Boards and teachers of Scotland at present experimenting with this form of practical work statistics and opinions are gathered and the scope of work in school gardening becomes as clearly defined as is that in history or geography or any at present well-established subject, the opinion is ventured that it is by the method mentioned that school gardening is to take its proper place as a means of education in the supplementary course.

Much real education is to be secured by training those who all their school days have been accustomed to answering questions put to them by others to acquire the mental habit of seeing for themselves questions involved in daily operations and of worrying out answers; by opening the eyes of the pupils that they may see for themselves some of the great laws of nature in operation, and may in a small measure acquire the ability to use them; by directing their minds towards the acquisition of just that kind of knowledge in practical things which means power to the working man; and by accustoming boys to learn to think about the work and the manner of doing it, and training them to make the efficient way a habit.

This, I believe, should help somewhat in training the supplementary-department boy for his future work, and produce in him such qualities of mind as will tend later to make him the type of workman who, having viewed the work on hand in the light of past experiences, arrives at

conclusions based upon the association of these with present observations, and sets about his work with that passionless thoroughness and directness of execution which are the characteristics of a truly educated workman, whether in an industry or a profession.

## SECONDARY SCHOOLS AND FREE SECONDARY EDUCATION.<sup>1</sup>

By J. W. MONKMAN.

**SECONDARY SCHOOLS—THE PRESENT POSITION.**—The schools providing secondary education at the present time may be roughly divided into three classes: (1) the municipal secondary schools; (2) the foundation or grammar schools; (3) the public schools. The municipal secondary schools are rate-aided, State-aided, and fee-charging. The foundation schools derive their income partly from the State, partly from fees, and partly from endowments. The public schools are financed both from fees and endowments. The number of secondary schools in receipt of State aid in England is 841. Two pounds per head is granted from the State for all ex-elementary-school pupils between the age of ten and twelve, whilst the grant on each pupil between the age of twelve and eighteen is five pounds. This grant, although given on condition that a number of free places is offered at the beginning of each school year to pupils entering from a public elementary school, is not, as is sometimes stated, a grant to benefit the worker's child alone; if it is, the State is paying £20 per head for every child over twelve, whereas the private individual—the parent of the fee-charging child—is in some cases paying only £1 or £2. The number of free places to be offered is "ordinarily" 25 per cent. of the total number of pupils admitted during the previous year. This percentage may be reduced or varied by the Board of Education in the case of any particular school. In England and Wales there are 124 schools in which sufficient grounds have been found for reducing this percentage. The tendency is to increase the fees, to place difficulties in the way of poor pupils, and to reduce their numbers.

**MUNICIPAL SECONDARY SCHOOLS.**—These schools have in most instances taken the place of the old higher-grade schools, in which many of the children of the working classes were formerly educated at a small weekly charge. At the instigation of the Board of Education the fees are now generally payable at the beginning of each term. Not only has the system of weekly payments been abolished, but in most cases the fees have been trebled, and in some cases quadrupled. The municipal secondary schools should be free as a matter of justice. The sites on which these schools are built are usually paid for out of a loan sanctioned by the Local Government Board and guaranteed by the rates; the cost of the buildings and of the apparatus with which they are equipped, as well as the salaries of the teachers, is mainly derived from the State or from the rates. So far, the position is identical with that of the municipal elementary schools. Wherein lies the difference? It is this—education in the primary schools is free, but in the secondary schools one-quarter of the pupils are admitted without payment, whilst three-quarters are required to pay fees varying from one to sixteen guineas per annum.

No tenable argument can be advanced in favour of the retention of these fees. If it can be shown that the cost of education falls upon the individual, then let the individual

pay the whole of it. What possible logic can there be in remitting three-quarters of the cost and asking for the remaining quarter? Many of the parents who send their children to these schools are under the impression that they are directly defraying the whole expense of their children's education, whereas they are obtaining special privilege at the expense of the community because they are in a position to make a small contribution towards the total cost. The question is not whether secondary education should be entirely free or entirely paid for, but whether it should be wholly or partially free. All contribute to the cost of secondary education, whether they use the schools or not. The majority of the children of the artisan and working classes are excluded from the schools which their parents are taxed and rated to support. The present system of "fee-payers" and "free-placers" creates an undesirable class distinction founded on wealth. The caste system must cease to dominate the field of education. The present fee-payers are not necessarily the children most capable of profiting by an advanced education. The present supply of secondary-school places is extremely limited, and the whole of the children filling them must be selected on an educational and not a financial basis.

**MAINTENANCE GRANTS.**—If after twenty years of free primary education we realise that its natural corollary is free secondary education, it is certain that, so long as the present economic conditions exist, something more than the abolition of fees will be required, or many of the children most capable of benefiting by secondary education will be debarred from obtaining it. It is regrettable that in the majority of cases the children of the working classes are required to supplement the wages of their parents. We are therefore face to face with this difficulty—if secondary education were free it would still be practically restricted to those whose parents are able to forgo the wages which their children might earn up to the age of, at least, sixteen. But the children of poor parents are frequently the most gifted, and the nation cannot afford to lose the benefits it would derive from having these children properly educated. Once having decided that education is the right of every child, we are bound to make no distinction, but to see that no child is deprived by the poverty of its parents of that which has been declared necessary. Some plan must be devised of utilising in the public interest the special talent and genius of those children who mentally are richly endowed, but materially are impoverished. It is folly to continue to neglect our most valuable national assets. When one recognises the good effect which the efficient training of this generation will have upon the next, one is able to realise the immense importance of grappling with the problem at once. The only practicable way of dealing with this question is by the establishment of a system of maintenance grants. These grants must be sufficient to enable the child to be properly fed and clothed during the time it is at the secondary school, and in some cases must be large enough to compensate the parent for the loss of the child's labour.

**FREE SECONDARY EDUCATION NOT DEGRADING.**—It will be said that if secondary education be made free it will have a degrading effect, and that people do not appreciate what they do not directly pay for. It is inconceivable how free secondary education can be degrading to the child of the man who has to work for his living when it is not considered degrading to the children of our great merchants and members of the aristocracy, whose ancestors were not ashamed to rob the poor of the magnificent educational endowments of old times and use them for their own advantage. If degradation will follow free secondary education, the fee-paying section of those who are availing

<sup>1</sup> From the presidential address delivered before the Conference of the National Federation of Assistant Teachers on September 29th, 1911.

themselves of instruction in our secondary schools is three-fourths degraded already. Our municipal art galleries and free libraries are provided in a similar way to our municipal secondary schools. They are the property of the people, and it is considered no more degrading to use them than to use one's own books or to look at one's own pictures. Free secondary education will be no more a provision of charity than a street lamp or a town pump.

**INCREASED EXPENDITURE ON EDUCATION.**—Just as it is imperative that the children of the working classes be provided with as good an intellectual equipment for the struggles of life as the children of the rich, so it is certain that increased educational efficiency will involve increased educational expenditure. The plea that the richest nation which the world has ever seen cannot afford this expenditure will not bear investigation. A nation with an estimated annual income of £1,800,000,000 can afford to spend more on education than it spends at present.

If we were to introduce free secondary education tomorrow, the cost of the existing schools would remain the same. It is the distribution of the cost which would be altered. The present system of taxation, under which all contribute by means of rates and taxes, and the parent is further taxed at the time his children are being educated, would be abolished, and the whole cost would be borne by the community. The State, by making a further grant of £250,000 per annum, could make the whole of the 325 existing Council secondary schools free, and abolish the system under which all are compelled to subsidise Council secondary schools in order that the children of those who can afford to pay fees may be educated at a fraction of the real cost, whilst most of the children of those who cannot afford to pay fees are excluded from all benefit.

The Council secondary schools, however, only form a part of the secondary schools in receipt of State aid. There are 438 foundation schools which, in addition to their endowments and fees, receive State aid, and it is because of this aid from the State, and not because of their endowments, that they admit a certain percentage of elementary-school pupils. The majority of these foundation grammar schools were founded by benevolent philanthropists who desired to place a good education within the reach of those who would otherwise have been unable to obtain it. These endowments are not now used for the purpose intended, but have been diverted for the benefit of the well-to-do.

Whether the cost is borne partly by the reversion of old endowments and partly by the State, or entirely by the State, the time has arrived when secondary education must be made free. The elementary education of this country is as efficient as in any country; a start has been made to make secondary education more accessible; but progress is much too slow, and as a nation we are rapidly falling behind. The public schools—both primary and secondary—must be available to all, and provide the best possible education. "Only the best is good enough for the child." Class jealousy and exclusiveness must be driven from the schools. The lowly born and the nobly born must have equality of educational privileges, and the children of the well-to-do must not be ashamed to sit on the school benches side by side with the child of the workers.

In no other European country is the well-educated class so small in proportion to the population. The stigma must be removed and our future citizens fitted to grapple intelligently with the problems of life, for to allow those to whom these problems will be submitted to remain ill-educated will be fatal to the best interests of the commonwealth.

## HISTORY AND CURRENT EVENTS.

ROME is at war with Carthage. What number shall we give to this Punic war? History repeats itself. To quote the old Hebrew cynic, "God is seeking again that which is passed away." Or rather, history is a unity, and geographical conditions are some of the influences which determine its course. Europe and Asia have long contended for control of the southern coast of the Mediterranean. And as the Italian power of the pre-Christian era contended with the great colony of Tyre, the New-Town (Carthage) of the "middle west" of those days, so now the Italian is at war with the owner of what was Phœnicia. How continuous history is may be further realised if we state the present conditions as a war between Venice and the Turk. In some respects the present war is more like the mediæval conflict than the older one, for Italy has not had to build a navy in order to win her "Lepanto," and the fighting has been in the Adriatic.

Yet there are differences. Between the first Punic war and this last one, Rome rose to be a world power, the nearest approach to a universal monarchy that Europe has seen, and then retreated before the inroads of the "barbarians" and the upgrowth of separate nation-states. At one time, when her spiritual dominion had replaced her temporal sway, and all Europe was "Rome" for religious purposes, she waged war with the Asiatic power in the name of religion. Did not St. Louis of France lead a crusade to Africa? But the world is now "Rome-less," and the reconquest of North Africa by Christendom is accompanied by jealousies which were impossible when Rome ruled the Mediterranean. France has Algeria and much beyond; Great Britain, for all practical purposes, rules Egypt; Germany, which was in olden times the enemy, so far as it was known, of Rome, has much to say on the matter; and those of us who merely look on have some suspicion that Italy is striking now, lest she lose the chance of sharing in the work of Europeanising North Africa. The "barbarians" have taken up the work of Rome.

EPITHETS of time are but relative, and we must, after thinking of Tyre and Tripoli in a breath, adjust our mental perspective and recognise that St. Andrews University is justified in regarding itself as "ancient," though it has not by any means reached the age of Methusaleh. Half a millennium is a long time to us "who are but of yesterday." We think of universities to-day in a different way from some of the thinkers of the seventeenth and eighteenth centuries. Do our readers know the short and sarcastic way in which Hobbes the philosopher spoke of universities in that remarkable chapter of his "Leviathan," wherein he describes in detail the "kingdom of darkness"? Or have they read Adam Smith's criticism of those of his own day in one of the later chapters of that still most readable of all books on economics, "The Wealth of Nations"? The alumni of St. Andrews worthily celebrated their five-hundredth birthday, and in some of the speeches made on the occasion there were some excellent comments made on history and current events which are well worth reading and preserving.

MEMBERS of the Brito-Irish House of Commons have decided that they shall be paid wages. When there was an English House of Commons its members were for a long period paid wages by their constituencies. That was one reason why boroughs tried to be excused from sending members. But when in the fifteenth century, and



still more in the sixteenth, membership of the House became desirable, would-be members indirectly bribed their constituents by offering to forgo their salaries. So the custom dropped gradually, and it is said that Andrew Marvell, member for Hull in Charles II.'s reign (he who wrote "He nothing common did or mean," &c.), was the last person who drew his wages as of old. When the custom was thus all but obsolete the King found that members of the "Cavalier" parliament could be won back to their original loyalty by receiving "favours" from the sovereign, and so persuaded to vote for anything but "Romanism" and a "standing army." Thus began that system of "influence" ("bribery" is the ugly name of the thing) which lasted, for good reasons, until Pitt the Younger's time, if not until the revolution of 1832.

## ITEMS OF INTEREST.

### GENERAL.

As we go to press, the appointment of Mr. J. A. Pease as President of the Board of Education is announced. Mr. Runciman has become President of the Board of Agriculture.

THE next annual meeting of the Historical Association will be held in Manchester on January 11th to 13th, 1912. Teachers wishing to become members of this association should communicate with the secretary at 6, South Square, Gray's Inn, London, W.C.

THE Selborne Society has arranged a course of lectures for the present session. The forthcoming lectures are as follows: November 17th, "The Dress of Our Ancestors," by Mrs. Charles H. Ashdown; December 29th, "The Romance of Marine Biology," by Mr. F. Martin Duncan; January 8th, 1912, special children's lecture, "The History of Punch and Judy," by Mr. Wilfred Mark Webb; January 23rd, "The Dawn of Astronomy," by Mr. F. A. Bellamy; February 19th, "English Cathedrals," by Mr. Charles E. Keyser; March 18th, "Mushrooms and Toadstools," by Mr. Somerville Hastings. The lectures will be given in the Theatre of the Civil Service Commission, Burlington Gardens, W., at 6.30 p.m. A large number of applications was made by non-members last season for permission to attend the lectures, and it has been decided that any member may personally introduce one friend, and that tickets for a single lecture may be obtained for 6d. each, or for the series at 2s. 6d.

IN 1912 the League of the Empire will hold in London the first conference of the representatives of teachers' associations in all parts of the Empire. This project has met with unanimous support both at home and overseas. At the Education Conference held by the League in April last, the representatives of the overseas education departments confirmed the work of the League. The teachers' associations throughout the self-governing countries have given their support to the undertaking. At home many educational associations have also given their co-operation. During the summer the League has taken the opportunity of consulting with many teachers visiting England who had been delegated by their associations to discuss details of the conference. The League has also received suggestions direct from the associations co-operating as to the proposed agenda. The committee hopes within a few weeks to have the general lines of the conference defined.

THE Imperial Russian Technical Society is arranging an International Educational and Industrial Exhibition, to be held in St. Petersburg from April 15th to July 15th, 1912. The exhibition will be concerned with the organisa-

tion and equipment of schools, and will be the first of its kind in Russia. The exhibition will include the following sections: school architecture, furnishing and hygienic condition of schoolrooms, articles for school demonstration purposes, equipment of laboratories and workshops, trade and professional schools, gymnastic and sports' apparatus, and equipment of agricultural and land surveying schools. The exhibition will be under the patronage of the Grand Duke Alexandre Michailovitch. Full particulars can be obtained from the executive committee, St. Petersburg, Panteleimonskaia, 2.

THE two papers dealing with practical education in Admiralty schools, printed elsewhere in this issue, are of particular interest, inasmuch as they describe work which, though almost unknown to educationists, represents the best types of continuation and technical instruction being carried on in this country. Some of the great Government departments have been condemned—and rightly so—for the "blind-alley" occupations which they offer to promising boys; but while they (the Post Office in particular) have been neglectful of their responsibilities, the Admiralty has established an educational system which, for the purposes it is intended to serve, is as excellent as can be found anywhere. The Royal Naval College at Osborne stands by itself as a training school for boys who will become officers in the Royal Navy, but its admirable curriculum could be followed with advantage in most of our secondary schools. It is not with this college, however, that the papers read by Mr. T. Dawe and Mr. W. H. T. Pain at the Portsmouth meeting of the British Association are concerned, but with other types of Admiralty schools not so well known, namely, those for the further education of apprentices in H.M. dockyards and those for the technical training of boy artificers.

BEFORE a boy can become an apprentice in one of H.M. dockyards he must have reached a high standard of elementary education. The competition for entrance is keen, and the boy who succeeds in it represents probably the best product of the elementary school. Apprentices are compelled to give up three evenings a week of their own time to attend school, and in return they are allowed to attend school on two afternoons a week during ordinary working hours, for which they are paid. The boys thus receive concurrent theoretical and practical training, and if they are exceptionally capable they may hope to reach high positions in the Admiralty service. Sir William White, in some remarks at Portsmouth upon the subject of the dockyard schools, mentioned the striking fact that at the present time every professor of naval architecture in Great Britain had been trained under the Admiralty system. The leading position which this country occupies in the shipbuilding industries is, indeed, largely due to the influence of the dockyard schools.

THE school for boy artificers, described by Mr. W. N. T. Pain, is of a different type. It is concerned with the technical training of boys for work in the engine-rooms of vessels of the Royal Navy. The boys enter at fifteen to sixteen years of age, and are under training for four and a half years, during which period they pass through various workshops and receive appropriate technical instruction. Both in this institution and in the dockyard schools there exists that admirable combination of workshop and classroom which produces efficient and intelligent workmen. In its educational undertakings the Admiralty has done pioneer work of the highest value to the nation, and its system cannot be too widely known or adopted. So far as we are aware, no particulars of the schools described by Mr. Dawe and Mr. Pain are easily available. We are glad, therefore,

to be able to publish the two papers in which accounts are given of the character of these institutions and the work done in them.

At another place in this issue we print parts of the presidential address delivered by Mr. J. W. Monkman before the National Federation of Assistant Teachers on September 29th, in which a plea is made for free secondary education. The address would have lost none of its force if the *vox populi* had been less strident, but we will put that down to Mr. Monkman's enthusiasm for the cause he has at heart: so let it pass. There are, however, one or two other points upon which we desire to make remark. Mr. Monkman suggests that the children of artisans are being kept out of our State secondary schools on account of the fees charged, while children of the middle classes and the well-to-do are usurping their rights. A glance at the latest volume of statistics of the Board of Education affords little justification for this view. Of the total number of pupils (other than pupil teachers) in these schools—that is, in secondary schools which have to offer 25 per cent. of "free places"—62 per cent. of the boys and 58 per cent. of the girls were ex-elementary-school pupils. If we take Council secondary schools alone, three-quarters of the pupils are from elementary schools. As we may reasonably assume that ex-elementary-school pupils are mostly children of working-class parents, it is evident that our State secondary schools as a whole are not of the exclusive type they are made to appear by Mr. Monkman's remarks.

We believe there are now very few really promising children of the working class who fail to secure places in our secondary schools if they wish to do so. In many districts it is difficult to find among the children presented from elementary schools a sufficient number to justify their admission to secondary schools under the 25 per cent. clause, without having a low educational standard. In fact, free secondary education practically exists at present for every capable child of working-class parents who desires to take advantage of it. The children do enter as free-placers or by payment of low fees; and most of them leave before they are fifteen years of age, so that they had better have remained in the elementary schools. As a general principle we are in favour of free secondary education, but the privilege should be accompanied by the responsibility of remaining at school until a full course has been completed, whether maintenance grants are provided from public funds or not.

One other point deserves mention. It would appear from Mr. Monkman's address as if the middle and upper classes have little right to any facilities offered by the State for secondary education. Has it ever occurred to him that these classes pay a large share of the cost of free education in public elementary schools, and pay also for their own children's education? The difference between parents of the middle class and those of the working class in this matter is that the former are willing to make sacrifices for the education of the new generation, whereas the latter are usually not so anxious, and take early advantage of the wage-earning capacity of the children. It is the duty of the State to see that the best children are carried forward in education from whatever class they may come. The working class has no monopoly of genius any more than have the middle and upper classes, but it looks to the State for its stimulating influence, whereas the other classes look to themselves.

THE report of the committee appointed by the British Association to inquire into the mental and physical factors

involved in education covers its first year's work, which mainly consisted in collating and digesting the various replies received in response to questions circularised among the medical officers and the teachers of special schools for feeble-minded children. It is not surprising to learn that considerable discrepancy exists as regards important details in the method and procedure of the nineteen different educational authorities who furnished answers to these questions. For this country is as yet only at the beginning of an attempt to grapple with the important problem of training the feeble-minded child upon rational lines. The work of this committee, which has been reappointed, will be of the greatest value if it results in no more than establishing a basis of practical standardisation in both diagnosis and subsequent treatment. The need for this is indicated by the great variation which exists in different schools as regards the standards of admission now actually in use, accompanied by an equally great variety in the methods employed in testing the intelligence and mental status of the children. The number of late entries is, as might be expected in the circumstances, disproportionately large; and the number of children who remain in the special schools until the full statutory age has been attained is very small, not because the elder children are transferred to ordinary schools, but apparently owing to the fact that they are allowed to leave school earlier than is necessary. From the returns to the questions as to the nature of the work, mental and manual, in which these defective children receive instruction, one fact emerges with emphatic clearness—"The attempt to teach the three R's is a lamentable failure," while the amount of time given to manual training is in many cases altogether inadequate. So far as the inquiry has proceeded, it does not appear that there is any very wide disagreement between the medical officers and the teachers in elementary schools on the subject of mental deficiency. Diagnosis of a scientific character and a wider acquaintance with modern psychological methods is needed. The want of precise knowledge of the types of mental defect in relation to the general problem of education is doubtless responsible for the lack of any apparent relation between diagnosis and treatment in the special schools.

DR. SHRUBSALL (one of the co-opted members of the committee) furnishes, in Appendix III., an extremely interesting detailed report upon methods of testing mental deficiency. It will amply repay perusal even by those who are not directly concerned with this particular branch of education. Although this country is still behind several others as regards its dealings with the mentally defective child, it will be evident to the most casual reader that the only method which can hope to prove both economical and effective is one which implies no small degree of specialisation. That it also implies an enormous amount of intelligent patience—and of patient intelligence—on the part of teachers, as well as of school medical officers, goes without saying; this becomes incidentally manifest throughout Dr. Shruballs's paper, which does not lend itself to quotation, because practically the whole of it is quotable. It also shows the necessity for special training on the part of those whose duty it is to carry out these investigations, and reinforces the plea made by the committee for a standardisation of the methods of both diagnosis and training.

THE third annual report of the London Schools Musical and Dramatic Association provides abundant evidence that much useful work has been accomplished during the year. The principal factors in the association's work are the leaflets issued from time to time. Two were prepared during the year under review, namely, "Acting of Shake-

speare's Plays in Schools," by Mr. William Poel, and "Acting as a Means of Teaching History to Children," by Miss Amice Macdonell. The association also arranged a number of successful lectures. An active Costumes Department has rendered timely service in lending dresses for plays to schools at a small cost. We are sorry to learn that the finances of the association are at a low ebb, and hope that the appeal for help and funds will meet with a generous response. The honorary secretaries of the association are Mrs. Millington, 132, Hampstead Way, London, N.W., and Mr. G. A. Bond, 75, Woodgrange Drive, Southend-on-Sea.

WE regret to learn that *The History Teacher's Magazine* of Philadelphia, to which attention has been directed on several occasions in these columns, has not been a financial success. Unless the history department of one of the American universities, or one of the American associations of history teachers, can be persuaded to undertake its publication, the September issue is to be the last. The publishers have not sought to make money out of the venture, and would have been content had the magazine paid its way. We suspect that the numerous demands upon the slender purses of teachers is the explanation of the limited circulation of educational periodicals dealing with special subjects, and not a want of pedagogic enthusiasm.

WE have received from Messrs. A. Brown and Sons, Ltd., of London and Hull, a list of books for home reading, selected and arranged under the title "The Boy's Bookshelf," by Mr. H. B. Browne, of Hymers College, Hull. The list is intended to guide the average boy in the selection of books worth reading. The titles of the volumes are given under subjects, and separate lists are provided for the various forms. Form masters will find the pamphlet useful for distribution to their classes; but most of them will desire to make additions and some excisions before the selection will quite represent their own experience.

#### SCOTTISH.

LORD PENTLAND, Secretary for Scotland, in presenting the leaving certificates to the pupils of Dunroon Grammar School, referred to the shrinkage in the Education (Scotland) Fund, and said that school authorities might rest assured that no effort would be awaiting on his part to restore to a sound and effective position the educational finances of the country. Contrasting the educational position to-day with that of the old parish schools, he said that centralisation was the distinctive feature of present-day education. If secondary education were to be given at all, it could only be done by means of well equipped and staffed centres. The cost of providing a secondary school in each parish was absolutely prohibitive; but deserving pupils in every parish should have bursaries at their disposal to enable them to proceed to the most convenient secondary education centre.

THE annual general meeting of the Educational Institute of Scotland was held in the Synod Hall, Edinburgh. Mr. James Beattie presided over a large gathering representative of all parts of the country and of all grades and classes of teachers. In the course of his retiring address he dealt with the question of larger areas. The present system, he held, had outlived its usefulness. There were 960 School Boards in Scotland, with a total membership of nearly 6,000. In certain of these areas there were more members than pupils, and in several others more members than teachers. The cost of administration alone came to more than £130,000 per annum. All this meant a wastage of

means and wastage of effort, and educational inefficiency with it all. He further expressed the hope that the Department and Parliament would in the near future direct their attention to the condition of the Education (Scotland) Fund. It was simply scandalous that the amount of money available for educational purposes in Scotland should depend upon the amount of whisky that was drunk and upon other equally unstable sources of supply. Dr. Alexander Morgan, principal of the Edinburgh Provincial Training College, was unanimously elected president for the ensuing year.

AT the general meeting of the institute the business in the forenoon is usually of a formal nature, but this year several questions of outstanding importance were discussed at the morning session. On the motion of Mr. R. G. Dickson it was unanimously agreed to protest against the constitution of the provincial committees for the training of teachers in so far as they did not give direct representation to teachers. These committees came in for some hard knocks from some of the speakers, one of them declaring that they were mere phonographs for registering departmental records. A resolution was also adopted, on the motion of Mr. Alex. Hutchison, expressing regret that the minute on the size of classes had been withdrawn, and strongly urging the Government to make the minute operative at the earliest possible date.

THE Education Department has issued a circular to the headmasters of secondary schools stating that it is at present engaged on an inquiry into the conditions under which language study is carried on in Scottish schools, and asking information in regard to the points raised in the following questions: (1) What languages other than English are studied in the school, and which is taken up first? (2) What choice of "first" languages is allowed? (3) Are two "first" languages begun simultaneously? If not, at what intervals? (4) Do pupils take a third language, and, if so, at what stage is it begun? (5) Do any pupils take a fourth language? (6) Do any pupils taking Latin and Greek study a modern language (or languages) with a view merely to securing ability to read at sight? (7) Give the minimum and maximum number of periods allowed for each language in each year of the curriculum.

A SPECIAL meeting of the Edinburgh School Board was held to consider the new regulations for the training of teachers, particularly with reference to the nomination of junior students. By the new minute, the convener explained, the nomination of these students was taken from the School Boards, the only body which had the necessary knowledge to make an intelligent selection, and given to the secondary education committees. Eventually a motion was passed stating that the Board was strongly opposed to the new procedure, which was a direct violation of the agreement made when the new system was established in 1906.

THE council of the Educational Institute has sent to all the Scottish Members of Parliament a resolution passed at the September meeting strongly protesting against the delay in passing the superannuation scheme, and calling upon them to use their influence to have it introduced during the pending autumn session. The accompanying letter makes generous acknowledgment of the friendly attitude of the great majority of members in regard to superannuation, and expresses the hope that this vexed question will soon be satisfactorily settled.

AT a meeting of the Glasgow Provincial Committee it was decided by a large majority to acquire a site at Woodend, on the Jordanhill estate, for the purposes of a new

training college for teachers. The site is a commanding one on the western borders of the city, and extends to forty or fifty acres.

OFFICIAL intimation has been made that, consequent upon the retiral of H.M. Senior Chief Inspector, Dr. Scougal, the following changes have been effected in the inspectorate of the Scotch Education Department: H.M. Chief Inspector, Mr. J. L. Robertson, to be H.M. Senior Chief Inspector; H.M. Inspector Mr. J. C. Smith to be Chief Inspector for the Training of Teachers.

THE inaugural meeting of the Historical Association of Scotland will take place in the University of Edinburgh on November 11th at 11 a.m. Prof. Tout, of Manchester University, will deliver an address on the functions of an historical association, and Prof. C. Sanford Terry, of Aberdeen University, on the place of history in the preliminary, leaving certificate, and bursary examinations. Full particulars of the association can be obtained from the interim secretary, Mr. William C. Ross, Royal High School, Edinburgh.

At a conference of School Boards in Kincardineshire, the question of uniformity of school books came up for discussion. The meeting, without a dissentient voice, approved the principle, and resolved to put it into practice at the earliest possible date. Throughout the whole discussion the educational aspect of the question was never once raised. Members seemed to be unaware that the experiment of uniformity in books had been tried for a whole generation in Ireland. The National Education Board there prescribed all the books for the whole country, with disastrous results to educational progress. Once a book was placed on the list, no matter how unsuitable its matter, how unattractive its form, there it remained to plague and disgust pupils and teachers. It is no exaggeration to say that towards the close of this period of uniformity Irish school books were twenty-five years behind the age. Fortunately this absurd system has now been swept away, and Irish schools to-day share in all the benefits which the rivalry and enterprise of publishers provide. Uniformity in books, as in most other things, means arrested development and death.

#### IRISH.

THE Dublin Commission appointed by the Irish Universities Act of 1908 has issued its final report. It has founded under the Act two new universities, with seats respectively at Dublin and Belfast, as well as a new college in Dublin. It has made statutes for these institutions, fixed the fees, and determined how much of the property of the Royal University is to pass to the National University. The commission concludes its great work with two regrets. It regrets, in the first place, that the financial condition of the University does not allow of its instituting any professorships out of its funds. The income from the transferred property of the Royal University amounts only to about £1,076 a year, while the annual charge at present for compensation annuities is £1,362 16s. 10d. The income of the University for the present consists only of £10,000 a year (the one-half of the £20,000 a year formerly payable under the Royal University Act of 1891), together with fees payable by students and graduates. The annual expenditure, on the other hand, for the year 1910 was £15,534, or £1,640 more than its income for the year. The commissioners note that the joint working of the University and its constituent colleges is even more costly than was anticipated, and they suggest that steps should be taken to simplify the system in the light of

experience. The second regret is put in very forcible language, and relates to the finance of University College, Galway. The scheme proposed for that college does not in any degree conform to the commissioners' conception of even a passable equipment for a constituent college of the University. It is a makeshift, not only unsound, but anomalous and inadequate. Its dangerous pecuniary condition must be regarded with much apprehension.

THE new Royal College of Science began the work of its first session in October, and the occasion was signalled by an inaugural opening ceremony, which took place in the chemical lecture theatre, and was performed by Mr. T. P. Gill, the secretary of the Department of Agriculture and Technical Instruction, under the care of which the college has been since 1900. Mr. Gill emphasised the position which has been acquired by the college during those eleven years. It has organised a national system of technical education, and has trained teachers and experts of various types for that work, to be agricultural instructors under the county committees, teachers in the agricultural schools, technical assistants in the Department, or agricultural inspectors. It has, further, reorganised the whole of the science and art teaching in the secondary schools of Ireland, and in the new building it is capable of still further extending its functions by co-operation with the new universities recently founded.

At the meeting of the County Dublin County Council in October, Mr. Wm. Field, M.P., brought forward the following motion: That as the finance of Irish secondary education has broken down, we earnestly request the Government to put this important branch of education on a sound financial basis, and we further urge the desirability of (a) paying the teachers in secondary schools salaries commensurate with the duties they discharge; (b) establishing a pension fund for their benefit; (c) giving them such reasonable security of tenure as will enable them to avail themselves of the advantages of such a pension fund; (d) establishing a regular profession of secondary-school teachers.

THE Department has during the month issued two useful pamphlets. The first is a prospectus, in 40 pages, of the Albert Agricultural College, Glasnevin, and contains a full description of the college buildings, farm, gardens, and orchards, particulars of the courses of instruction, fees, examinations, syllabuses of the subjects in the agricultural course, including agriculture, botany, zoology, veterinary hygiene, physics and chemistry, horticulture, poultry-keeping, bee-keeping, farm calculations, drawing, land surveying, and manual instruction, with copies of recent examination papers; similarly of the subjects of the horticultural course, including elementary science, practical gardening instruction, soils and manures, fungus pests of plants, zoology, bee-keeping, English, calculations, and drawing and surveying. The second is a reprint from the Department's Journal of an article on "Technical Instruction in Clonmel," and is fully illustrated with plans and photographs.

#### WELSH.

THE Welsh Department of the Board of Education is now publishing from time to time circulars on subjects of the curricula of secondary schools "for the information and guidance of school authorities." The latest circular (no. 40) treats of physical training. It deals with the object of physical training, its definition, the Swedish system, Swedish apparatus, and other systems. It goes on to the question of syllabus, describes a gymnasium, and in

connection with arrangements gives suggestions as to separate classes, the length of the lesson, the number of lessons, the place of physical exercises in the time-table, the size of the classes, and dress. Lastly, are pointed out what should be the qualifications of the teacher of physical exercises, and the relation of the medical officer of the school to physical training. The memorandum, it is stated, has been drawn up by the Medical Department of the Board of Education.

IN the prefatory note, the secretary of the Welsh Department writes: "The Board wish it to be clearly understood that the object they have in view is the careful and well-balanced cultivation of the physical powers of each individual child. They do not desire by this memorandum to encourage the acquirement of a high degree of technical expertness by a limited number of pupils, nor to further the custom of gymnastic displays by selected teams. These things may, no doubt, be good and useful, and may have their special value in school life; but the Board wish to emphasise the fact that physical training should be directed towards improving the health and raising the standard of physical development of the pupils. This can only be done, so far as physical exercises are concerned, by the appropriate application of a graded system of exercises based on the principles of physiology and designed to suit the age and capacity, as well as the physical needs, of each pupil."

THE Monmouthshire Education Authority has decided to start a mining centre at Crumlin, and to provide a building and equip it with all necessary apparatus and machinery. The chairman of the Higher Education Committee has stated that, out of the large number of young men engaged in the mines, there are only 273 under instruction in mining classes. He stated that he knew from experience that some young fellows had almost to be carried to the classes. The reason, probably, was that as the boys left school when they were fourteen, and for four or five years did not attend anywhere, they were out of touch with education when they went to these classes, and broke their hearts in a month or two. The average number of passes was very low. Only about twenty were anxious to take the first-class certificate. The remedy, he believed, was to lay hold of the boys when they were young.

FURTHER, the chairman urged, "seeing the glut in the teaching profession," parents ought to see that their boys took up, not the arts course in the secondary schools, but that they should go on the commercial and technical side, and then go on to a University College and qualify for becoming managers of mines. But we can only ask, if "the remedy is to lay hold of boys when they are young," what becomes of the idea of a "liberal education" as the basis of technical education, the very object, we understand, for which the secondary schools were established?

THE medical lecturer in charge of the Anti-tuberculosis Exhibition reports that visits have now been paid to nineteen towns in Wales, and that in Cardiff, Swansea, and Merthyr alone more than 100,000 visited it. On the educational aspect the lecturer has said: "The people have responded to the educational campaign in a wonderful way, and have shown a keen desire to learn all they can from it, and there is evidence of definite achievements already. School teachers in places where the exhibition has been have told me they have noticed a marked difference in the cleanliness and habits of the school children."

THE Merioneth Education Committee has written to the Board of Education and elicited a reply with regard to

the fees required by the Central Welsh Board for inspections and examinations. The Board of Education has replied that in its view the Central Welsh Board ought so to fix its rates of charge that it does not take more than is necessary for the year, leaving a reasonable balance in hand. The Board considers that £2,000 is more than ample as a working balance. The Board states, in the letter, that it is informing the Central Welsh Board that it feels strongly that a reduction is most desirable in the certificate charges, "which appear to be altogether out of proportion to the actual intrinsic cost of the certificates to the Central Welsh Board."

## THE ROMANS AND THEIR RELIGION.

*The Religious Experience of the Roman People from the Earliest Times to the Age of Augustus.* The Gifford Lectures for 1909-10. By W. Warde Fowler. xviii+504 pp. (Macmillan.) 12s. net.

WE have put down this book with a feeling that we never understood the Romans before. They have been to us the type of the efficient people, without imagination or a love of culture; one that would not trouble much about the gods except so far as they feared them or hoped to gain from them. Both these feelings are undoubtedly to be found in the Romans; but Mr. Warde Fowler has shown something more. He draws a simple and honest people, living by the land, and bound up at every season of life with the unseen. His ceremonies of propitiation and worship are made to beings who are friendly to him, not Etruscan bogies, not the monsters of savagery, nor yet the elaborate pantheon of the Greeks: but homely creatures, although powerful even for mischief. In fact, we have another instance that the farmer is nearer God than the townsman. When Romans became townsmen, their religion degenerated, and their town mobs became as brutal and as greedy as other town mobs nearer our own day.

The influence of the State is another matter on which Mr. Warde Fowler throws new light. He sees in the early traditions many traces of magic, kept from the age of savagery: but when the State took religion in hand—that is, by the act of Numa or some great reformer, as Mr. Warde Fowler is ready to believe—all traces of magic seem to have been carefully excluded. It is the "Fasti Anni Romani" that give us the facts from which this inference is drawn; our author sees no reason to doubt that the large letters in this calendar mark the feasts of Numa's day, free alike from magical superstition and from the Grecizing of later times. He sees here a "clean and rational worship" which may bear comparison with almost any other. We must not omit to mention a conjecture of Mr. Warde Fowler's which will commend itself, we believe, to scholars: that the Flamen Dialis, with his hedge of superstitious taboo, was brought from Alba Longa at the settlement, because he was "too precious to leave behind," but that he is outside the proper course of Roman religious history.

Mr. Warde Fowler is cautious; he has a good deal of criticism, gentle but quite effective, of the theories of the anthropologists. He also shows a quiet amusement at the sheep-like way in which German scholars in particular follow their leader.

Besides the account of the early deities or spiritual powers of Rome, Vesta Penates and genius in the familia, the di indigetes in the farm, there is a careful interpretation of the acts and terms of ritual. The author sees little of "sacramental sacrifice," but a truly religious element in both sacrifice and prayer. Yet the chief effect of early

religion as organised by the State was to discipline the people's minds; religious feeling in a great degree was blunted. With wider intercourse came in the Greek deities and other foreign cults; these in their turn proved unfit to meet the spiritual wants of the devout. With the Hannibalic war, religion, which had been declining, took on a new strength, but in a different form: that of fear or even panic. After this we have the Bacchic invasion and the Pythagoreans, both of which were met by measures of State. Philosophy and mysticism prepare the way for Lucretius on one hand and Virgil on the other, with the revival of religion under Augustus.

We have not space to discuss the doubtful topics that arise: we have been content to give our impression of the whole work. Yet doubtful topics are not neglected. Mr. Warde Fowler is not a superficial critic, nor a sentimentalist; he stands almost alone in his combination of wide and deep learning with humour and sound judgment. Scholars will learn from this book much that is new; those who are interested in humanity will be charmed with the author's sympathy. For it is this more than anything else, as we have remarked before, that marks off Mr. Warde Fowler from other scholars: it is the sympathy which understands, and, regarding Romans as real live men and women, shows us how they are like ourselves in their virtues as in their faults.

### A MISCELLANY.

(1) *A Primer of Teaching Practice*. By J. A. Green and C. Birchenough. 262 pp. (Longmans.) 2s. 6d.

(2) *A Short History of English Versification*. By M. Kaluza. Translated by A. C. Dunstan. 396 pp. (Allen.) 5s.

(3) *The Animal World*. By F. W. Gamble. (Home University Library.) 256 pp. (Williams and Norgate.) 1s.

(4) *Selections from English Literature*. Vol. ii. (1700-1900). By H. N. Asman. 212 pp. (Methuen.) 2s.

(5) *Browning's "Men and Women"*. 1855. Edited by G. E. Hadow. 350 pp. (Clarendon Press.) 3s. 6d.

(6) *Select Orations*. Edited by A. M. Hall. 307 pp. (New York: The Macmillan Company.) 1s.

(7) *Hamlet*. Edited by A. W. Verity. 262 pp. (Cambridge University Press.) 1s. 6d.

(8) *English Patriotic Poetry*. Selected by L. G. Salt. 160 pp. (Cambridge University Press.) 2s.

(9) *Virgil's Aeneid, Books I., II., VI.* Translated by Dryden. Edited by A. H. Thompson. 136 pp. (Cambridge University Press.) 1s.

(10) *Ballads Ancient and Modern*. With Introduction by O. Smeaton. 108 pp. (Dent.) 6d.

(11) *Poems of Thomas Gray*. Edited by A. J. F. Collins. 132 pp. (Clive.) 2s. 6d.

(12) *Tennyson (Fifty Poems)*. Edited by J. H. Lobban. 299 pp. (Cambridge University Press.) 2s. 6d.

(13) *Chaucer, The Pardoner's Tale*. Edited by C. M. Drennan and A. J. Wyatt. 196 pp. (Clive.) 2s. 6d.

(14) *Bacon's Essays, 31-45*. Edited by A. J. F. Collins and S. E. Goggin. 73 pp. (Clive.) 1s. 6d.

(15) *Paradise Lost, Books V. and VI.* Edited by A. J. F. Collins and S. E. Goggin. 114 pp. (Clive.) 1s. 6d.

INTERESTING books continue to pour in—along with their opposites. Prof. Green's "Teaching Practice" (1) is, to our astonishment, quite human: for such books are generally dull. We think we detect a flavour as if the editors had been reading American books on teaching; and this is welcome. Doubly welcome is the full transcript of a

lesson—questions and answers. It would be quite easy to edit a dozen lessons in this fashion, and they would teach teachers a good deal. The chapter on narration seems rather inadequate—narration, widely understood, is five-sixths of the teachers' stock-in-trade. Prof. Kaluza's "Versification" (2) is a most learned book which suffers a little from its foreign look and from being obviously intended for Germans; the work is, as all such books must be, polemical; for on no subject do critics differ more. It is most interesting to see our verses chopped up by a foreign voice: for, after all, the voice must have the last word. We should have liked more scansion of actual examples.

"The Animal World" (3), a trifle technical, follows the good example of the series in being at the same time very interesting: but the general reader would have liked more than a page on the mosquito and his friends, a puzzle as difficult as, and more tragic than, the puzzle of the cuckoo. Sir Oliver Lodge's preface is not for all.

Mr. Asman's "Selections" (4) are parallel to Mr. F. J. Rahtz's *Literature* lately noticed: the book would make a very good basis for repetition—were it not that we are all afraid of taxing our memories. Mrs. Hadow's "Browning" (5) is, of course, good; but the notes (with one very singular lapse, p. 369, corrected) should be fuller; no one bears annotation so well as Browning; and does the editor really think "Childe Roland" a descriptive poem without morbidity? We welcome "Select Orations" (6); it belongs to an excellent pocket series, and half-a-dozen volumes might be added from ancient and modern oratory. Lincoln is poorly represented, possibly because another volume in the series deals with him. The introduction is most curious; can the orator be made? Dr. Verity's "Hamlet" is well known—in all respects it is admirable: but a footnote is not enough to explain (and we think to explain wrongly) the basis of English scansion; the appendix is very valuable. "English Patriotic Poetry" (8) adds one more of these small books to a growing list; but not one, it seems to us, is large enough. We welcome the children's song; and the introduction is long and good. But the big book of such poetry has not yet come. A mass of fugitive poetry deserves, in this respect, to be saved from the river of time.

Dryden's "Aeneid" (9) comes opportunely as a comment on Prof. Moulton's "World Literature." We are giving up Latin and Greek: but dare we give up their literature and teaching? This is not the place to discuss whether Dryden's verse is or is not the best introduction to Virgil. The great fourth book was, possibly, not considered suitable for schools: yet it is the most human of all.

"Ballads Ancient and Modern" (10) contains the usual school ballads; it is a portable, well-printed book. Surely it is a dangerous thing to say that a ballad must be anonymous, and that a modern ballad cannot reproduce the flavour of the age that is past. Madame Darmsteter and Mr. Kipling, to say nothing of Coleridge, arise and contradict. Gray (11) is well edited: we rejoice to see the correct printing of the line "Awaits alike th' inevitable hour": we have directed attention to the incorrect version so often. A critical comparison of the "Elegy" and of Collins's "Evening" would have been welcome.

Tennyson (12), so ungrateful are we, is apt to be a little belittled; all the more reason is there to note Mr. Lobban's manly praise of his excellences; even a longer introduction, placed at the end of the book, would have delighted us. Tennyson is Shakespearean in his grasp and scope; and his output was immense. "The Pardoner's

Tale" (13) is another of Chaucer's masterpieces which deserves many editings; the contrast between the cynical and humorous prologue and the beautiful tale itself is one of the most finished things in literature; we forgive the Pardoner everything, and even Jusserand admits there are things to forgive—for this double-barrelled masterpiece. The notes and glossary are good; the introduction we have seen many times. Bacon's "Essays" (14) is a small examination book, not in Bacon's spelling; Milton's "Paradise Lost" (15), by the same editors, has a long introduction. Both books serve their obvious purpose; but no brief editing of either will bring Bacon or Milton home to the class. Bacon is the stiffest, and, as generally taken, Milton the dullest, of our great writers; the one appeals to the logical faculty, the other to fine reading—aloud. These books do for a beginning: but Reynolds and Masson are the later helps.

### THE CAMBRIDGE BIBLE FOR SCHOOLS.

(1) *An Introduction to the Pentateuch.* By A. T. Chapman. xx+339 pp. (Cambridge University Press.) 3s. 6d. net.

(2) *Exodus.* By the Rev. S. R. Driver. lxxii+443 pp. (Cambridge University Press.) 3s. 6d. net.

(3) *Numbers.* By A. H. McNeile. xxvii+196 pp. (Cambridge University Press.) 2s. 6d. net.

(4) *The Book of Joshua.* By the Rev. P. J. Boyer. xx+103 pp. (Cambridge University Press.) 1s. 6d. net.

(5) *James and Hebrews.* By Arthur Carr. viii+147 pp. (Cambridge University Press.) 1s. 6d. net.

THESE five additions to the Cambridge Bible (R.V.) for schools and colleges reflect the greatest credit on the editors, and can hardly be spoken of in too high terms. The employment of the Revised text is not only an economy of space, but a step in advance. The approved results of critical research are freely, yet judiciously, used, and in such a manner as to entail no loss of reverence for pages sacred with the story of primitive religious struggles and beliefs. At the same time, a naturalistic explanation of many passages which have hitherto been stumbling-blocks in the way of English-speaking youth can tend only in one direction—to conserve, we had almost said *restore*, the regard of both teachers and taught for our English Bible. In this respect, apart altogether from their usual encouragement of thoroughness and scholarship, the Syndics of the Cambridge University Press and their Bible editors are rendering a signal service to liberal thinking and intellectual honesty.

The aim of Mr. Chapman's separate "Introduction to the Pentateuch" (actually to the Hexateuch) (1) is to give a general account of the critical problems which concern these books as a whole. The author deals principally with three propositions: first, that the Hexateuch contains passages of later date than the times of Moses and Joshua; secondly, that it is a composite work of at least four documents; thirdly, that the laws in the Pentateuch consist of three separate codes belonging to different periods in the history of Israel. There are valuable appendices, a subject-index, and a text-index of the numerous Scripture passages referred to. As Mr. Chapman advisedly points out, the higher criticism has often been confused with historical, and even speculative, criticism; consequently, when the true scope and purpose of the higher criticism are understood, many objections founded on these misconceptions melt away. The idea of this separate introduction was nothing short of an inspiration, and so scholarly and systematic is it that it cannot fail to be of the greatest value to the teacher and the student.

Dr. Driver's "Exodus" (2) is marked by his usual breadth of outlook and lucidity of expression. A reservoir of closely packed notes is preceded by a charming introduction of seventy pages. A sketch of the history of Egypt during the Israelitish sojourn there is particularly arresting, especially some of the parallelisms and the conclusion of the author that "there were Israelites settled in Canaan before the entry into it of the Israelite tribes who came out of Egypt with Moses." Equally illuminating is his explanation of what is meant when it is said that God *spake* to Moses (and others). "When a prophet says, 'And God said,' 'Thus saith the Lord,' &c., what he means is that he is conscious of an impulse or direction, not his own, being given to his thoughts, the result of which, as he describes it, he puts into his own words and expresses in the style peculiar to himself." The natural groundwork of the Ten Plagues, the Passage through the Red Sea, &c., with the equally natural manner in which their dimensions would be magnified until they assumed miraculous proportions, is reasoned with admirable clearness. The moral value of all such occurrences is set forth with no less emphasis. A good index, several illustrations, and three capital maps add to the worth of this already invaluable volume.

Dr. McNeile in his "Book of Numbers" (3) well sustains the high standard of this series. The text naturally calls for fewer notes than, say, Exodus, yet they are adequate, and indicate the most thorough research. There are excellent introductory chapters on the Levites and on the historical and the religious values of the book. Also there is a useful list of allusions to the Book of Numbers in the New Testament.

Mr. Boyer's "Book of Joshua" (4) has a good, if brief, introduction. But the notes to this important book are hardly adequate, and such as we have are not always sufficiently explicit. The student is left quite in the dark as to what really happened when Joshua commanded the sun to stand still. Again, in the dramatic story of Achan a fine opportunity has been missed of indicating the limitations of the Israelitish moral code. The book would be of more value to the student if an intimate knowledge of the Pentateuch were not too generally taken for granted.

Mr. Carr deals with "James and Hebrews" (5) in the efficient and vigorous manner we have learnt to expect from him. The full notes go direct to the point, elucidating unmistakably the text. Of the introductory chapters, specially noteworthy are those on "St. James and St. Paul—Faith and Works," and "The Authorship of Hebrews."

### RECENT SCHOOL BOOKS AND APPARATUS.

#### Modern Languages.

*Intuitive French.* By M. Verdon. vii+185 pp. (Methuen.) 2s.—This "year's course for beginners" does not contain anything fresh; it is on reform lines, and satisfactory so far as it goes. The text is somewhat hackneyed; the *questionnaires* are of the familiar type; the treatment of the pronunciation is hardly adequate; there is an excessive amount of grammar. The exercises contain a good deal of translation from English, and there is a French-English vocabulary. It should be recognised by this time that both are undesirable in a first year's course.

*A French Composition Book according to the New or Direct Method.* By F. V. Massard. iv+169 pp. (Rivingtons.) 2s. 6d.—The first part of this book consists



of Daudet's "Chèvre de Monsieur Seguin" and "Agonie de la Sémillante" divided into short sections (of about fifteen lines), each followed by a *questionnaire*, questions on grammar and vocabulary, and an English passage (nine to twelve lines) based on the text for translation. The second part consists of model letters, with suggestions for the writing of similar letters, and extracts from various authors which are intended as models for free compositions, the subjects of which are indicated. The third part contains a number of English passages, with notes giving the rendering of what is likely to prove difficult. At the end of the book there are "A Few Rules on French Syntax." The author is to be congratulated on a good and useful piece of work, which forms a satisfactory transition from free composition to set translation. The only fault we have to find is that some of the exercises in Part I. are of a bad type, as they require the correction of mistakes (e.g., *Corrigez*: Le feu est sorti. Usez-vous cette plume? Je n'ai pas de change. Elle ne pense jamais d'elle).

*Preliminary French Lessons.* By O. Siepmann and L. F. Vernols. xiv+98 pp. (Macmillan.) 1s.—This volume "is intended for pupils who begin to learn French at the age of about eight, when the faculty of imitation is still keen and the intellectual powers are little developed." If it is thought wise to begin a foreign language at this early age, then this little book will be found useful. It is based on a good picture, the same as that published in connection with Mr. Siepmann's "Primary French Course," and the text and exercises are strictly on reform lines. The only criticisms that can be made are that the pronunciation is treated too briefly and without the use of phonetic symbols, and that the vocabulary is too extensive for beginners of this age. Matters of detail are that the French and the English *w* should not be described as identical (p. xiii); that *les* is not usually described as a particle (p. xiv); that *La maison est longue*; *la cage est courte* (p. 19) are not happy uses of the adjectives in question; that *jeune* should precede *grand* on p. 80; and that the term *parfait* occurs in the index (under *avoir*) but not on p. 89.

*A. Dumas, La Tulipe Noire.* Edited by H. O'Grady. xvi+340 pp. (Dent.) 2s.—This well-printed edition of Dumas's excellent novel may be recommended for cursory reading. There is an excellent preface by Faguet, and Mr. O'Grady's notes give skilful explanations in French of difficult words and expressions in the text. Our pupils, as a rule, read far too little; we want more books of this kind that will tempt them to private reading.

*Perfect French Possible.* By Mary H. Knowles and Berthe Deslombes Favard. x+52 pp. (Heath.) 1s. 6d.—This book offers "Some Essential and Adequate Helps to French Pronunciation and Rhythm." It is "indispensable to singers; priceless for reference; no student of French can afford to do without this little book." It is "unique in that it gives infallible rules for the production of those sounds that cannot be approximated in English." It is "the briefest, simplest, and most complete work on pronunciation ever published; its briefness and its simplicity being the most valuable result of our wide experience and long years of study." "If ever there were a system in which a pupil, determined to learn, and unable to procure a master, could teach himself to pronounce as French people do, this is the one." These accomplished ladies do not believe in hiding their light under a bushel. Here, then, we have the most complete work on pronunciation ever published—in fifty-two pages. It is hardly necessary

to consider such a preposterous claim seriously; the only interest of the book lies in the light it throws on the backward state of phonetics in the United States. A few quotations, however, will show those who have some phonetic training that the high-sounding self-advertisement is not justified: "There are thousands of persons who know perfectly well that French *i* equals English *ee*, and who nevertheless go through life pronouncing the past participle 'finished,' finny, instead of *fee-nee*, which, had it been firmly fixed in the mind at the outset, would be quite as easy as 'finny,' since all the sounds in this word *fini* are English sounds (*fee-knee*)." "*Ien* is almost always final, and is in this case equal to *yan* in the English word *Yankee*." "Do not accent, but gently caress the last sounded syllable." We conclude with a few puzzles for our readers from the supplement of "French sentences expressed by English words": what French sentences are represented by the following English words? "School tap pea. Ash tame aid scene eight two. Shave ooze oh see. Cud eat eel? Swan Yale lamb map teat. Dusk coat tail lamb mash air." Indeed "priceless for reference," this little book of "French as she is spoke"!

*A. Dumas, Le Roi de France et le Roi de Navarre.* Edited by F. W. M. Draper. viii+74 pp. (Nutt.) 6d. net.—The text (38 pp.) is divided into nine sections of approximately equal length. To each section there is a *vocabulaire*, in which all but the most common words are translated; some notes on grammar and idiom are supplied; there is a *questionnaire*, followed by questions on grammar and vocabulary; and indications (skeleton outlines) for free compositions based on the text. The reform teacher would welcome this little book more warmly if there were no *vocabulaire*, as this prevents the pupils from exercising their powers of gathering the meaning from the context; apart from this, Mr. Draper's work deserves much praise. There is a commendable absence of misprints.

#### Classics.

*Latin Elegiac Verse Writing modelled upon Ovid.* By W. J. Hemsley and J. Aston. 192 pp. (Blackie.) 2s. 6d. net.—This book contains select pieces of Ovid, a life of Ovid (why?), notes on the passages from Ovid, rules for verse-writing, rules of scansion, aids to verse-writing, exercises, a "general exercise," vocabularies, and index. We gather—but we are not told—that a boy, apparently in the Fourth Form, ought to practise writing elegiacs after reading not more than 450 lines; we are not told that he should read all the pieces first, and in practice, no doubt, the master will begin as soon as he has read one. We are told that boys will find the subject dull, and that it is a pity they are taught elegiacs instead of hexameters. Yet the masters do it. Why? And why does the "general exercise," which is the most elementary, come at the end? And what is the use of this note: "dēerat: a disyllable by synizesis"? How does synizesis help the puzzled boy? When we turn to the rules, we find first twelve rules for verse-writing, amongst which are these: "Master first the meaning of the English," "Always aim at giving the sense of the English," . . . "use short sentences," . . . "try to bring out the style of the English" (an impossible thing at this stage), . . . "learn short pieces of elegiacs by heart," "if you cannot get a line out, change your constructions, change your words, and you will be sure to get it out in the end." Examine the logic of the last rule; if it were logical, what help is it to say, Change your words? Will any word do? All the book is written in



(3) *Pitman's London Readers*. Books III. (1s. 3d.), IV., and V. (1s. 6d. each).

(4) *Golden Dawn Readers*. Edited by A. P. Graves. Books I., II., and III. (Nisbet.) 10d., 1s., and 1s. 3d.

(1) All these books contain the best kind of reading matter, but it is not continuous. Worked at with atlas and an index rerum—a device worth introducing into any school—the pieces should be possessions for ever, as indeed some of them deserve to be; but, as we continually observe, without indexing the pieces are naught. These books contain gems from many writers—Borrow, G. Eliot, Dickens.

(2) and (3) Messrs. Black and Pitman illustrate the books admirably; and the London Literary Readers have again and again been noticed as bringing modern ways before the children.

(4) The Golden Dawns are well illustrated also, but are for little ones. It seems wise that some general scheme should be issued to districts in regard to these readers; economy and interest would then both be provided for. Desultory reading, which may be defended, is different from happy-go-lucky reading in school, which cannot.

### History.

*A History of England for Schools*. By M. W. Keatinge and N. L. Frazer. viii+701 pp. (Black.) 2s. 6d. each part.—The main feature of this history is the large number of illustrative documents (over half the book being occupied in this way) and the questions, many of which are intended to require study of the documents and original thought. There is also a history, which contains a wonderful amount of information in the short space. There are maps and plans, and each part (the division is at 1603) has an index. The book is the working out of a theory as to the teaching of history which it would be well to test in practice at any rate with our older pupils. Until this is done, it would be rash to express an opinion. But every teacher should have a copy. Only one point of criticism we have to make. Why do the authors prefer the *De Tallagio non Concedendo* to the *Confirmatio Cartarum*, in view of Prof. Stubbs's opinion of these documents expressed in his "Select Charters"?

*Student's History of England and Great Britain*. By W. J. Beer and J. Fenwick. Edited by D. Patrick and W. Woodburn. 594 pp. (Chambers.) 2s. each section.—The period covered by this book is from 55 B.C. to 1910 A.D., but not including the death of Edward VII. It is published in two parts, dividing at 1485, and also (from 1066) in three sections, 1066-1485, 1485-1714, 1688-1910, sections 2 and 3 thus overlapping both in dates and pagination. It is the three "sections" which are before us. The story of each reign is given in what is now becoming the old-fashioned way, followed by summary, notes, glossary, and questions. There are some small maps, but no index. It is a useful summary of the chief events, but it is not always quite up to date on some points.

*British India, 1600-1828*. By A. W. Tilby. vii+286 pp. (Constable.) 4s. 6d. net.—This is the second volume of "The English People Overseas," a work which the author seems to be rewriting as he advances into the second edition. He also describes it as "Books" VI.-VIII. of the whole work. It consists of twenty pages sketching the ante-British period of Indian history, and a hundred and sixty devoted to the history of British India down to 1828. Then follow five chapters which the author calls "The End of the World Struggle, 1789-1815," but which contains, *inter alia*, sketches of the revolt of the American

colonies, of the evangelical movement in England, the struggle against Napoleon, and much extra-European history of France and Great Britain throughout the nineteenth century, ending with Waterloo and some reflections. Mr. Tilby relies much on the best recent works on his subject, as well, apparently, as "records," &c., and is candid enough in his notes to tell us how he has learned better since his earlier editions from such books as Forrest's "State Papers" and Stephen's "Story of Nuncomar." We wish that other writers on Warren Hastings would learn, like him, not to be misled by Macaulay. The result of this learning is a readable but sketchy account of the work of the East India Company until 1828, and a mass of miscellaneous matter besides more or less loosely connected therewith.

*A Short History of Birmingham*. By J. E. Jones. 175 pp. (Birmingham: Cornish.) 1s. net.—Birmingham, as Mr. Norman Chamberlain says in a preface, "only rose to greatness when feudalism and romance . . . had already given way before humdrum Philistine industrialism." This booklet therefore has no long story to tell, though what is known of mediæval Birmingham is narrated here; but the modern rise and achievements of the Midland capital receive adequate treatment, and the pictorial illustrations will make the book desirable to all inhabitants of Birmingham and others interested therein. There is an index.

*A Short History of Canada*. By C. L. Thomson. 213 pp. (Horace Marshall.) 1s. 6d. *A Short History of India under the British*. By M. A. Hollings. 154 pp. (Horace Marshall.) 1s. 6d.—These two books are part of "a series of short histories meant to supply a want which seems to be felt for brief accounts of the rise of our colonies and dependencies, which, though written on a moderate scale, are yet more vivid and detailed than is possible when colonial history is treated only incidentally in the course of that of Great Britain." Both are supplied with lists of governors, chronological tables, bibliographies, and indexes. Miss Hollings's book seems more thorough than Miss Thomson's, giving more of the social life and of the problems, while Miss Thomson confines herself to the purely political history, and is comparatively slight in the more modern period and on the problem of confederation. But they will both be found useful to teachers and pupils studying the subject of our Empire-story.

THE New Zealand Government has sent us twenty-four pictures constituting the first issue of a comprehensive series of historical pictures entitled "British History in Picture." Further issues, we are told, will be made from time to time. These pictures are on cards, each measuring 9×6 inches, and are thus intended to be in the hands of the pupils. On the back of each picture is letterpress, giving a brief account of the circumstances illustrated. Some of the pictures are reproductions of well-known pictures; others are apparently original. They are all good.

### Geography.

*Geographical Pictures*. Edited by P. A. L'Estrange. (Philip.) Set complete in box, 21s.—This is the second series of what promises to be an excellent aid to geographical teaching. It comprises twenty pictures, of which three illustrate historical geography, seven industries, one communications, four scenery, and five famous cities. Each may be purchased separately in oak frame for 5s. It may be said at once that the pictures are admirable. They are enlarged from actual photographs taken by Frith, Valentine, and other well-known firms, and measure

24×20 inches. Holes are punctured at the corners, strengthened for the purpose, so that the pictures may be pinned on to any suitable support for class use. Notes and questions are printed at the bottom of each. With the pictures we can find no fault. Each is well worth a special frame. No. 2, "St. Botolph's, Colchester," would grace any room, whether in school or library. The notes might have been fuller with advantage, and to make room for them the questions might have been omitted. Indeed, the latter are the weak point of the whole series. There are none that would not occur at once to any intelligent master who intended to use the pictures educationally.

*New Wall Maps. The World and Europe.* Bathyographical. 50×42 inches. (W. and A. K. Johnston.) 12s. each.

*The Dominion of Canada.* "Excelsior" map. Bathyographical. 42×24 inches. (Bacon.) 7s. 6d.

These maps are all coloured in the now familiar browns, greens, and blues, and are excellently adapted for all teaching of geography which bases its lessons—and what teaching worthy the name does not nowadays?—on physical geography. In all of them the "lie of the land" is the prominent feature, just what the master or mistress requires for the first, and the last, lesson on whatever geographical subject may be allotted to the time-table. One word of criticism suggests itself. All three maps are a little on the small side for class use, for large classes at all events. This applies especially to the "Bacon," in which, too, we think, there are rather too many names, and certainly too many railway complications. *Ex uno disce omnes.* It is really not necessary on a school wall map to indicate the two parallel lines of railway from Saskatoon to Edmonton. It is questionable, also, on the same reasoning, whether insets are of much, or any, value on wall maps. They are better left to the pupils' school atlases. The "Canada" contains a tiny "Newfoundland," and the "World" two maps of isotherms and rainfall. As, moreover, these climatic points are only mean *annuals*, they are not effective. One point they do make incidentally: they help to correct the unavoidable errors of the Gall projection used for the larger map.

### Mathematics.

*Fundamental Concepts of Algebra and Geometry.* By J. W. Young. viii+247 pp. (Macmillan.) 7s. 6d. net.

*Monographs on Topics of Modern Mathematics.* Edited by J. W. A. Young. viii+416 pp. (Longmans.) 10s. 6d. net.

The critical examination of the fundamental concepts of mathematics, pursued at first almost exclusively by Continental mathematicians, has more recently been engaging the attention of some of the younger English professors. To the majority, however, of the latter such investigations will probably never be very attractive, bordering as they do so closely upon metaphysics. Still, the results of recent work upon the logical foundations of mathematics cannot be wholly ignored by teachers of the subject, and for them, as well as for philosophers and logicians, Prof. J. W. Young has written the first of the two books before us. The question he sets himself to answer is, "What is mathematics?" and to that end he reviews the development of the abstract, formal point of view during the past few decades. Skilful selection of topics, lucidity of exposition, and aptness of illustration make the book eminently readable, and the non-specialists, to whom it is primarily addressed, should experience little difficulty in following the argument.

It is very likely that a number having read this book will desire to see a more detailed treatment of some of

the topics there touched upon, and these will find in the collection of monographs exactly what they require. The range of subjects in the two volumes is practically the same. The several monographs are entitled: (i) "The Foundations of Geometry"; (ii) "Modern Pure Geometry"; (iii) "Non-Euclidean Geometry"; (iv) "Fundamental Propositions of Algebra"; (v) "The Algebraic Equation"; (vi) "The Function Concept and the Fundamental Notions of the Calculus"; (vii) "The Theory of Numbers"; (viii) "Constructions with Ruler and Compasses, Regular Polygons"; (ix) "History and Transcendence of  $\pi$ ." Of these, (i) and (iv) will be found by English readers to be those which break most fresh ground; but all will be found useful, and the collection deserves a place in every teacher's library.

(1) *Macmillan's Reform Arithmetic.* By P. Wilkinson and F. W. Cook. Books I., II., III., IV. 48 pp. 3d. each. Books V., VI. 64 pp. 4d. each. Teachers' Book I. 96 pp. 9d. (Macmillan.)

(2) *The Rational Arithmetic.* By G. Ricks. (Girls' edition.) First to fifth year's course. 48 pp. 3d. each. Sixth and seventh years' course. 89 pp. 5d. Teachers' Books. First to fifth year. 48 pp. 8d. each. Sixth and seventh years' course. 89 pp. 10d. (Macmillan.)

(3) *Applied Arithmetic.* Pupils' Book I. 62 pp. 4d. Pupils' Book II. 80 pp. 6d. Teachers' Book I. 80 pp. 15s. 6d. (Nelson.)

(4) *The Senior Arithmetic.* Book II. By J. L. Martin. 208 pp. (Harrap.) 10d.

(5) *Problems and Practical Exercises in Arithmetic.* By J. A. Macduff. 63 pp. (Frowde.) 6d.

(6) *Elementary Workshop Arithmetic.* By H. A. Darling. 172 pp. (Blackie.) 15s. 6d.

(7) *Handwork and Practical Arithmetic.* By G. E. Johnson. Book I. 128 pp. Book II. 106 pp. (Pitman.)

The influence of the "Suggestions" of the Board of Education is very manifest in the new "arithmetics."

In "Macmillan's Reform Arithmetic" the scheme of instruction developed is of the concrete type, involving counting of objects, measuring, weighing, &c., leading in the later stages up to elementary geometry and mensuration. The exercises are well calculated to teach not only mechanical accuracy, but also intelligent application to everyday problems of arithmetical principles. Each book contains the work for one year.

The plan of the "Rational Arithmetic" is very similar to the above. In the girls' edition attention is specially devoted to matters connected with domestic life. The exercises are of a somewhat easier type than the corresponding examples for boys, and not so varied in character.

In Nelson's "Applied Arithmetic" the subject is taught with the aid of manual work, involving the construction of simple models. It is intended that this work should be done during the last four years at an elementary school. The teachers' manual will be found very helpful to those who have not taught the subject before.

Pitman's "Handwork and Practical Arithmetic" is of a similar character.

Although "The Senior Arithmetic" is quite up to date, it contains some survivals from pre-reformation days, such as "alligation."

"Problems and Practical Exercises in Arithmetic" will be found useful when preparing candidates for scholarships.

Darling's "Elementary Workshop Arithmetic" is intended for use by students from workshops and factories, and provides instruction in decimals, contracted methods, mensuration, both plane and solid, graphs, and logarithms. But what are *lateral* symbols?

**Science and Technology.**

*The Outdoor World Library.* (1) *The Outdoor World: or, Young Collector's Handbook.* xviii+411 pp. (2) *Life in Ponds and Streams.* xix+406 pp. (3) *The Seashore.* xviii+436 pp. (4) *Butterflies and Moths (British).* xiv+358 pp. (5) *Field and Woodland Plants.* xvi+383 pp. All by W. Furneaux. (6) *British Birds.* By W. H. Hudson. viii+363 pp. (Longmans.) Each 3s. 6d. net.—It would be difficult to find a more admirable set of volumes on natural history than that before us. The volumes are well written, instructively illustrated with numerous figures in the text and coloured plates, attractively produced, and remarkably cheap. We can imagine no better present to a boy interested in animal or plant life than one of these books, and no more valuable addition to the school library than the complete set. The books are reissues or new impressions; but they are none the worse for that, and each one is far superior to the insipid and prolix works which some writers now put forward as popular natural history; for the benefit, we suppose, of people who are too tired to see or think for themselves, and prefer pretty word-pictures of country scenes to a personal acquaintance with animate nature. Such literature only produces invertebrate dilettanti, whereas the volumes under notice will make naturalists. The young collector, the keepers of aquaria, the inquirer who desires to identify common animals and plants, and the student of structure can all find helpful guidance and practical hints in these volumes. We trust that the books will be placed in the library of every school where interest in nature is encouraged, and that they will all meet with the distinguished success which their high merits deserve.

*Peeps at the Heavens.* By the Rev. J. Baikie. 96 pp.+16 plates. (Black.) 1s. 6d. net.—The elementary facts relating to the sun, moon, planets, comets, stars, and nebulae are here described simply and accurately. The same story has been told many times before, but each teller impresses his own personality upon it, and is able to present it in new aspects. A child can read Mr. Baikie's book and profit by the celestial scenes it reveals. With such a simple and attractive volume available there is no excuse for ignorance of the nature and movements of the worlds around us. A few of the coloured plates represent things unseen by most astronomers (for instance, not one observer in a hundred has seen Jupiter or Saturn with all the nice tints shown on plates x. and xi.); nevertheless, they are impressive, and will no doubt serve to infect the reader of the book with some of the author's enthusiasm.

*Direct-vision Prisms for the Projection of Spectra.* (Freiburg (Breisgau): F. Hellige and Co.) Prices from £1 2s. to £3 10s.—Messrs. Hellige and Co. have submitted to us a specimen of a direct-vision prism, manufactured by them at the suggestion of Prof. Königsberger, which is especially adapted for lecture experiments or for such researches as tank growth in homogeneous light. The prism consists of a glass box subdivided by two diagonal glass partitions meeting in the centre of one side, thus enclosing two end prism chambers and one central chamber of wide apical angle. These cavities are filled with non-volatile fluids of suitable refractive index. The former quality enables the apparatus to be hermetically sealed and instantly available, a point which will strongly appeal to those who have had practical experience of carbon bisulphide or cinnamic ether. In the older type one of the components was a large glass prism, and this limited the size and enhanced the cost. This glass prism is abolished in the new model, and there is no limit to the dimensions, while the cost, size for size, is less than a

third. We have used the prism for projection, and find that it gives a long and brilliant spectrum, not only much more luminous than that obtainable by a train of oblique-vision prisms, but also free from curvature. For still greater dispersion it is possible to join on a second prism. This can be detached by the simple loosening of a screw, when either can be used for ordinary work. Such a combination is cheaper, and in all respects better, than the usual five-prism combination. We are not told what the fluids used are, but from the fact that they solidify at very low temperatures it may be supposed that they are similar to the almond oil and methyl salicylate combination used by Mr. C. D. Ahrens for a biliquid prism, which was described in *NATURE* of November 24th, 1910, and has been put on the market by Mr. J. Pillischer.

*Famous Chemists.* By E. Roberts. 248 pp. (George Allen.) 2s. 6d.—Mr. Roberts provides brief biographies and short accounts of the chief researches of some twenty-six famous chemists from Stahl to Victor Meyer, arranged in the order of the dates of their births. From the school-boy's point of view, the memoirs lack interest and the complete absence of illustrations does not add to the attractiveness of the volume. The book will prove useful in giving a rapid survey of the historical development of chemistry and merits a place in the school library; but it is hardly suitable as a class-book.

*Broad Lines in Science Teaching.* Edited by F. Hodson. With an introduction by Prof. M. E. Sadler. Second edition. xl+267 pp. (Christophers.) 5s. net.—We reviewed this book at length in our issue for May, 1910 (vol. xii., p. 181). We welcome the appearance of a second edition as an indication of a growing interest in the question of the place science should take in the curriculum of schools. An index might well be added when a third edition is called for.

**Miscellaneous.**

*Plays for Young People for School Entertainment and Home Theatricals.* By F. H. Harris. Six Plays. 177 pp. (Cassell.) 2s. 6d.—The selection of suitable plays to act at school entertainments will be assisted greatly by the appearance of this book. The plays, which are mostly historical, are noteworthy for their diversity of incident. Ancient Rome, the Crusades, "the spacious times of Queen Elizabeth," the contests of Cavaliers and Roundheads, and the French Revolution have all been made to yield dramatic material. There is a slight tendency in "Ancient Rome" to introduce modern phrases unsuitable to the period; and the part of "Junius" is somewhat tedious, having little relation to the action of the piece. "A Royal Fugitive" is especially good, with its clear and interesting plot, a cast not too large, and scenery and costumes of a picturesque type. It may be hoped that Miss Harris will shortly use her powers of dramatisation in the adaptation of old classics and legends for the use of schools. The book is well illustrated, a point of much value both to actor and stage-manager.

*Harrap's Dramatic Readers.* Book I. 128 pp. 6d. Book II. 127 pp. 6d. Book IV. 192 pp. 1s. By Augusta Stevenson. Book V. 216 pp. 1s. 3d. By Marietta Knight. (Harrap.)—As their title shows, an effort is made in these books to arouse in children greater interest in reading aloud by using a dramatic version, thus eliminating the monotony sometimes experienced in a large reading class. The authors suggest that the parts should be taken by each child individually; and this method should result in an improvement in the style of reading, as it

gives an opportunity for originality and clearer inflections of the voice. The series graduates from very simple fables in Book I. to excerpts from standard authors in Book V. In Book I. the stories chosen are not so well known as those in the two last volumes. German folk-lore is drawn upon largely, but our English fairy tales are somewhat neglected. "The Return of the Spring" is a delightful adaptation of "The Pied Piper of Hamelin," and other poets might yield fruit for similar treatment. The illustrations are a fitting adjunct to an admirable series.

*Scenes from "Alice in Wonderland."* Adapted for use at Public Schools by Albert G. Tidmarsh. 80 pp. (Dent.) 1s. net.—Although, in the first instance, these scenes are intended for use amongst boys, they may by a little alteration be used by girls. The scenes chosen are old favourites, and commendation must be given to the clear and concise way in which they have been adapted to dramatic requirements. The suggestions for scenery are rather more complicated, but an ingenious amateur carpenter would overcome this difficulty. The hints on staging and dressing would be more useful if they preceded the acts instead of coming at the close.

SIR ISAAC PITMAN AND SONS, LTD., have commenced the publication of their *Commercial Encyclopaedia*, and will complete the work in about thirty-six fortnightly parts, at 7d. net each. The first part will give a good impression in classes dealing with commercial subjects; it is illustrated with appropriate maps, and deals with subjects falling under A to AGE.

*Plastic Millinery and Miniature Dressmaking.* By Lilian Carter. 40 pp.; twelve plates, numerous diagrams and patterns. (Cassell.) 2s. net.—This book describes an ingenious attempt to provide the older girls in elementary schools with handwork of a kind which, in addition to the exercise of the fingers, provides interest for the mind. The manufacture of hats and dresses in plastic material has been introduced into schools with success by the author.

## CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

### A Missing Chapter in Arithmetic.

EXCEPT on the rare occasion of a change of text-book, the teacher is probably never led to scrutinise the contents of his arithmetic course, but, without thought as to the existence of other kinds of questions, aims at making his pupils familiar with just the types of questions given in the book. The maker of the arithmetic book inserts in it all the types of question that he can find in his predecessors' books, adding examples on the latest fad and a few small variations of his own. Hence we get an explanation of the omission from most of the recent books, even from those that claim to be practical, of what might be considered the commonest and most practical type of question, which is from given approximate numbers to calculate the result as correctly as the data allow. In the text-books, under Approximation or Abbreviation, we are shown how to find with a minimum of labour the result correct to a stated number of significant figures. The writer's experience is that fairly intelligent boys who can work the latter type fail miserably when they first try the

former; the difficulty, of course, is to determine how many figures can be relied on.

This question recently presented itself under somewhat awkward conditions. Boys who had only just begun decimals had in the physics laboratory to get numerical results from their approximate observations. The physics master could, of course, cut the Gordian knot by having all results worked out to four figures. But this would be unscientific and misleading, as the data might admit of only two or three figures being found, or might possibly admit of even five or six.

What I need in my circumstances, and what is desirable in all cases, is a very simple and easily understood method which can be taught in the mathematical class-room and used almost without thought in the physics laboratory. Many of the recent arithmetics were consulted, but little or no help was obtained. The following method, which, however, has not yet stood the absolutely essential test of experience, seems likely to be successful, and may be useful to other teachers. Without the alteration or unlearning of anything, it leads up to a satisfactory method of obtaining the complete solution, the approximation with the limits of error, which ought to be reached by the more advanced classes.

For addition and subtraction put the numbers down as usual, and draw a vertical line, which we shall call the "guillotine," to the right of the final figure most to the left in any line. The sum is worked in the usual way, no attention being paid to the guillotine. Here, as well as in multiplication and division, beginners may be allowed to use all the figures; but it is, of course, desirable that they should learn, as soon as conveniently may be, to use only one or two figures to the right of the guillotine. The figures on the left of the guillotine form the answer.

| Addition.   | Subtraction.   |
|---|--|
| $\begin{array}{r} 5'7231 + 17'1 + 9'543 + 13'7 + 10'0937. \\ \phantom{5'7231} 5'7^{23} \\ \phantom{5'7231} 17'1 \\ \phantom{5'7231} 9'543 \\ \phantom{5'7231} 13'7 \\ \phantom{5'7231} 10'094 \\ \hline 56'160 \\ \text{Ans. } 56'2- \end{array}$ | $\begin{array}{r} 18'7 - 11'8753. \\ \phantom{18'7} 18'7 \\ \phantom{18'7} 11'875 \\ \hline \phantom{18'7} 6'825 \\ \text{Ans. } 6'8+ \end{array}$ |

For multiplication and division put the first significant figures one below the other, the dividend below the divisor. It is to this arrangement that the great simplicity of the process is due. Draw the guillotine to the right of the final figure, which is the more to the left; work without regard to the guillotine, using all, or preferably one or two figures to the right. The figures on the left of the guillotine form the answer. If it is thought desirable, the class may be told or shown that the error cannot exceed in multiplication 1 in the second figure to the left of the guillotine, and in division 5 in the first figure to the left.

**Multiplication.**

$$\begin{array}{r} 78'3 \times 0'095478. \\ \phantom{78'3} 78'3 \\ \phantom{78'3} 0'095478 \\ \hline \phantom{78'3} 7047 \\ \phantom{78'3} 3915 \\ \phantom{78'3} 3132 \\ \phantom{78'3} 548 \\ \phantom{78'3} 63 \\ \hline 0'747593 \\ \text{Ans. } 0'7476- \end{array}$$

Division.

|                    |                     |
|--------------------|---------------------|
| $0.075 \div 25.47$ | $205.731 \div 8.07$ |
| Quotient 0.0029 41 | Quotient 25.49      |
| Divisor 25.47      | Divisor 8.07        |
| Dividend 0.075     | Dividend 205.73     |
| 50 94              | 161 4               |
| 24 06              | 44 33               |
| 22 92              | 40 35               |
| 1 04               | 3 98                |
| 1 02               | 3 23                |
| 2                  | 75                  |
| Ans. 0.0029 +      | Ans. 25 +           |

In the first division the first figure of the divisor, 2, divides into the first significant figure of the dividend, 7, so the first figure 2 of the quotient is put above these figures. In the second division two figures of the dividend 20 are needed, so the first figure of the quotient is put over the second figure.

In division an extra figure or two may be got in the quotient by taking all the figures that give in the working any figure on the left of the guillotine. Thus above the answers are 0.00294 and 25.5.

The guillotine can be applied to the usual process of finding the square root and to Horner's method for cube root.

Square Root.

|                |               |
|----------------|---------------|
| $\sqrt{50735}$ | $\sqrt{19.2}$ |
| 225.24 4       | 4.38          |
| 2 5.07.35      | 4 19.20       |
| 4 107          | 16            |
| 42 84          | 320           |
| 2335           | 249           |
| 445 2225       | 71            |
| 110 00         | 69            |
| 4502 90 04     | Ans. 4.38     |
| 19 96          |               |
| 450.4 18 02    |               |
| 1 94           |               |
| 450 1 80       |               |
| Ans. 225.244   |               |

The position of the first figure of the square root should be noticed.

Cube Root.

|                  |         |
|------------------|---------|
| $\sqrt[3]{61.7}$ | 3.951   |
| 3 9              | 61.7 00 |
| 6 2700           | 27      |
| 90 3591          | 347 00  |
| 99 4563          | 323 19  |
| 108 462          | 23 81   |
| 117 4618         | 23 10   |
|                  | 69      |

Ans. 3.95 +

For the answer all the figures of the root must be taken (as in division) until they cease to give figures on the left of the guillotine.

In order to obtain the complete solution, the approximate result with the limits of error, a second vertical line is drawn, and the possible errors in the original numbers are inserted in the same position with respect to this line as they would occupy with respect to the guillotine. All the operations are then performed with all the figures; all results involving any of these error figures are inserted in the error column.

I have used this method for some years, and have found it most satisfactory in all kinds of approximations; I am sorry that I cannot say where, if anywhere, I first came across it.

Addition.

$5.72 + 17.1 + 9.543 + 13.7 + 10.0937$ , the last figure in each number being the nearest.

The error in each case is not greater than  $\pm 5$  in the next place.

|        |     |
|--------|-----|
| 5.72   | 05  |
| 17.1   | 5   |
| 9.543  | 00  |
| 13.7   | 5   |
| 10.094 | 00  |
| 56.157 | 105 |

Ans.  $56.16 \pm 0.11$ , or  $56.2 \pm 0.1$ .

Subtraction.

$18.7 - 11.875$ , the last figure in each number being approximate.

|        |    |
|--------|----|
| 18.7   | 5  |
| 11.875 | 00 |
| 6.825  | 50 |

Ans.  $6.825 \pm 0.050$  or  $6.82 \pm 0.05$ .

Multiplication.

$78.3 \times 0.00954$ , with possible errors of 2 and 3, respectively, in the last figures.

|          |                  |
|----------|------------------|
| 78.3     | 2                |
| 0.00954  | 3                |
| 704 7    | 18 ... 9 x 2     |
| 39 15    | 10 ... 5 x 2     |
| 3 13     | 1 ... 4 x 2      |
|          | 235 ... 3 x 78.3 |
| 0.746 98 | 4.26             |

Ans.  $0.74698 \pm 0.00426$ , or  $0.7470 \pm 0.0043$ , or  $0.747 \pm 0.004$ .

Division.

$0.075 \div 25.47$ , with possible errors of 3 and 2 per cent. respectively.

Possible errors are 0.00225 and 0.5094.

|                    |                                |
|--------------------|--------------------------------|
| Quotient 0.0029 41 | 1.47                           |
| Divisor 25.47      | 51                             |
| Dividend 0.075     | 2.25                           |
| 50 94              | 1.02 ... 2 x 51                |
| 24 06              | 3.27                           |
| 22 92              | 46 ... 9 x 51                  |
| 1 04               | 373                            |
| 1 02               | 2 ... 4 x 51                   |
| 2                  | 375 ... to be divided by 25.47 |
|                    | 255 ... 1 x 25.47              |
|                    | 1.20                           |
|                    | 1.02 ... 4 x 25.47             |
|                    | 18                             |

Ans.  $0.00294 \pm 0.00015$ , or  $0.0029 \pm 0.0001$ .



## Square Root.

$\sqrt{50735}$ , with a possible error of 1 per 1000.

|     |      |    |      |
|-----|------|----|------|
|     | 225  | 24 | 11   |
|     | 5'07 | 35 | 50'7 |
| 2   | 4    |    |      |
|     | 107  |    |      |
| 42  | 84   |    |      |
|     | 23   | 35 |      |
| 445 | 22   | 25 |      |
|     | 1    | 10 | 51   |
| 450 |      | 90 | 45   |
|     |      | 20 | 6    |

Ans.  $225'24 \pm 0'11$ .

In this, the "double guillotine," method of getting the complete solution, the two vertical lines serve simply as guides to the relative positions of the figures of the approximation and the errors. So long as they occupy corresponding positions, they may be drawn anywhere.

Another good method for the complete solution is to express the error as a decimal of its number. This is the method given in most text-books dealing with this question.

A third method, applicable to easy questions, is to take the extreme possible values of the numbers and to work out the greatest and the least possible answers.

If anyone knows of simpler methods and rules, I shall be very grateful for information. H. G. WILLIS.

Grammar School, Manchester.

## New Laboratory Methods.

*Absolute Expansion of a Liquid: U-Tube Method.*—Mercury is poured in to fill the U-tube just up to the constriction C in the tube B (Fig. 1). Hot water is poured into the limb B so as nearly to fill the tube—the stirrer and thermometer being in position—and cold water into A so as to bring the mercury roughly back to the constriction. By slightly turning the tap D, a stream of hot water is run through the tube B until it is heated up so far as possible. The height of the water in B is now finally adjusted so as just to bring the mercury back to the constriction, and the heights and temperatures in A and B read after thoroughly stirring. The thermometers and suspending wires, which have practically the same volume, act as stirrers, and are made as small as convenience and accuracy will allow. After allowing B to cool down for a few minutes, fresh readings are taken; this is repeated until a series of results are obtained. The alteration in the two heights due to the stirrers is

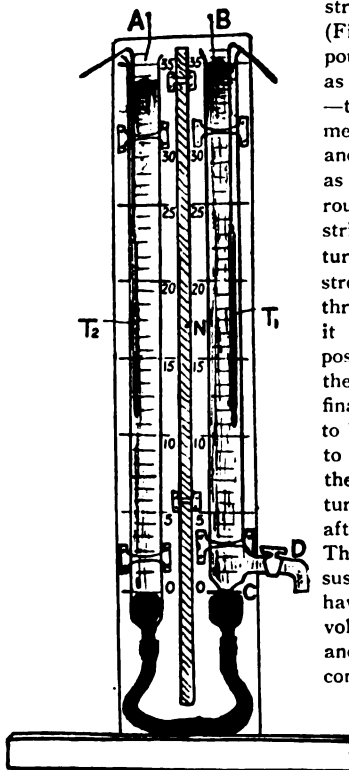



FIG. 1.

is repeated until a series of results are obtained. The alteration in the two heights due to the stirrers is

then ascertained, and the real heights from the constriction given. The differences of heights and differences in temperatures of the two columns are plotted, thus showing variation of absolute expansion, and the value of the coefficient at various temperatures calculated. The tubes are provided with an opal back so shaped as to bring the liquid to a  shape for accurate reading.

*The Determination per cent. of CO<sub>2</sub> in a Carbonate.*—This apparatus is devised for the purpose of overcoming the difficulty of suspension of the inner tube and for the removal of residual gas in the flask after the action has ceased.

The tube A is disconnected at C and weighed, with and without the solid, which is introduced through the holes H (Fig. 2). The acid is placed in the flask, and the whole weighed as usual. By inclining the apparatus, the solid and acid are brought into contact, and the gas dried by passing through the calcium chloride tube B, which is shaped to give maximum stability to the apparatus.

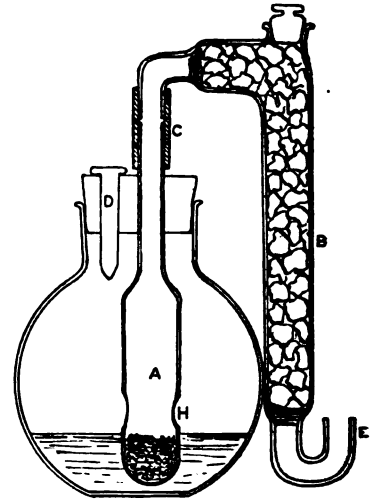


FIG. 2.

After the action has ceased, and the dissolved carbon dioxide expelled from the acid by gentle warming, the small rod D is removed, and the CO<sub>2</sub> remaining in the flask replaced by air by means of suction through a small rubber tubing fixed to E. The whole is then again weighed as usual.

The apparatus can also be used for finding the equivalent of a metal by replacement of hydrogen from acid or alkali, both by weight, and also by replacing the drying tube by the syphon arrangement, by volume.

The pieces of apparatus are supplied by Messrs. Townson and Mercer, London. J. W. YATES.

## The School World.

A Monthly Magazine of Educational Work and Progress.

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# The School World

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DECEMBER, 1911.

SIXPENCE.

## ON THE TEACHING OF READING.

By H. BOMPAS SMITH, M.A.

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### I.

THE teaching of reading is often confined to teaching boys to read aloud, but, as a matter of fact, the ability to read to ourselves quickly and intelligently is of more importance than the power of reading well aloud. The two kinds of reading are closely connected with each other, but each has characteristics of its own and should be definitely taught. The comparative neglect of deliberate instruction in silent reading seriously affects the work of some boys who lack the requisite industry or ability to make good the deficiency for themselves. Such boys constantly fail to grasp the meaning of lessons which they have to get up out of books. We even get into the way of thinking that we must go through all such lessons with the boys before we can expect the boys to learn the lessons for themselves. This practice is no doubt sometimes necessary, especially in the case of the younger boys, but it is a confession of weakness to regard it as the normal course.

Our object in teaching boys to read is to help them to appreciate the meaning of the sentences they see before them. We want to get them into the habit of assimilating instinctively the meaning of any passage suited to their capacity, so that they may feel dissatisfied if they do not succeed in doing so.

But in order that this object may be attained, the boy must be trained in the various processes which are included in the act of reading. If he fails adequately to perform any one of these processes, his comprehension of the meaning will be correspondingly imperfect. These processes are three in number. The first is the recognition of the shape of the words we see. But this recognition is of little value unless we connect the words thus seen with the corresponding sounds. It is the sound of a word that has a meaning for us, not its shape when it is written. Hence the second stage is the translation of the sight of the words into their sound. The third stage is our assimila-

tion of the meaning conveyed by the sound of the words mentally spoken or heard.

While it is convenient to distinguish these stages, it is important to remember that they are all elements in one single process, and cannot be separated from each other. We can hardly recognise a word without saying it to ourselves and to some extent grasping its meaning, nor can we grasp its meaning unless we have first recognised it and converted it into mental speech. Still, one of these stages in the process may be more efficiently performed than another. Our reading may suffer from our slowness in recognising words, or from a lack of readiness in converting them into sounds, or from our failure to gather their meaning promptly. Hence in teaching boys to read it is necessary to give definite practice in each of the three stages.

The first stage, the recognition of words and sentences by their shape, involves a rather complicated process. The beginner, indeed, recognises a word by the natural though laborious method of reading each letter in succession. If the word is an unfamiliar one he may have to spell it either mentally or aloud. But the practised reader proceeds quite differently. In some cases he need not even see the individual letters. Experiments show that words may be recognised as wholes when the letters of which they are composed are either so small or so distant as not to be recognisable individually. The expert reader appears to be guided largely by the general outline of the word, and by certain outstanding letters or combinations of letters. For example, letters which project above the line are usually of particular importance. The initial letters are of more importance than the end ones, and the top half of the letters in a word gives more guidance than the bottom half. By thus attending to the salient features of the words rather than to the individual letters which compose them it is possible, as experiment shows, to read short words more quickly than single letters. This is, however, not the case if we are reading syllables which have no meaning. It is our knowledge that each group of letters must form a word with which we are presumably familiar that enables us so readily to recognise what the word must be. The difficulty

we experience in reading unfamiliar proper names shows how much assistance we derive from our previous acquaintance with the words. If, further, the possible meaning of a word is limited by the context, so that we have a comparatively narrow range of words from which to choose, the process of recognition is rendered all the easier. If I find a sentence beginning "Once upon a," followed by a short word of which the first letter is "t," I at once know that the fourth word must be "time," and need not trouble about the letters "ime." It is found that the time taken in reading nonsense syllables is much longer than that taken in reading words, and isolated words take longer to read than words forming coherent sentences.

If a boy is to read easily and quickly he must acquire the power of recognising words without attending to all the letters that compose them. This power can only come by practice, and so far as short common words are concerned, all that is necessary is that he should read enough, especially to himself. But as regards long or difficult words a good deal of help can be given. We can direct his attention to the form of the unfamiliar words he meets, and we can make him acquainted with their meaning. We do not always take sufficient care to make our boys familiar with the look as well as the meaning of the hard words they have to read. This may be done in various ways, by taking the word to pieces, by comparing it with others like it, and so on. The great point is that when the boys come across the word again, they should almost instinctively recognise it as a familiar friend. It is important that this discussion of difficult words should, whenever possible, take place before, and not after, the sentence or paragraph in which they occur has been read by the boys. This obviates the necessity of stopping in the middle of a passage in order to concentrate attention upon individual words.

A discussion of the spelling and meaning of individual words has the further advantage that it tends to repress the vague guessing that is a characteristic weakness of many boys' reading, especially when they try to read too fast. This tendency to guess is generally due to one or both of two causes. In the first place, a boy may not have acquired the habit of accurate observation, and may therefore have only an indefinite impression of the letters in the word he is trying to read. One finds boys who, even at the second or third attempt, evidently do not see the letters clearly; or secondly, the deficiencies in a boy's vocabulary may lead him either to substitute a familiar word for one with which he is unacquainted, or it may give him the impression that almost any combination of syllables may mean something. In the latter case he pronounces a word unknown to himself on the chance of its meaning something to other people. In our efforts to get boys into habits of rapid and easy reading, we must be on our guard against encouraging either of these forms of guessing. If a boy shows a tendency to read inaccurately, the remedy will probably be to make him do a good deal of spelling, or to

explain carefully the meaning of words he does not know before he reads them.

The power of rapid recognition acquired by the practised reader is, however, not confined to individual words. Such a reader is able to take in a number of words at a glance. Many words he will pass over, inferring their existence from his knowledge of the meaning of the sentence. The process is similar to that by which he recognises words without looking at all their letters. He reads a phrase or sentence as a whole by attending to the important words. Some of the words will not come into the centre of his field of vision at all. Others will be passed over with great rapidity. Experiment shows that, as a rule, the eye does not begin at the beginning of a line of print, but starts at the second or third word; and in the same way it does not follow the line to the end, but stops a word or two short. It also does not move uniformly along the line, but passes rapidly from one point to another a few words further on. There are usually between one and seven such resting-points in an ordinary line of print. Moreover, the reader's recognition of the words before him is more irregular even than the movement of his eyes. Recognition involves some degree of attention, and in the case of most readers the movement of the attention does not correspond to that of the eye. Their attention may move backwards and forwards, and pick out important words almost irrespective of the order in which they stand on the page. The number of words over which the attention can wander in this way varies with different readers, but it is usually large enough to enable phrases and short sentences to be read, as we say, at a glance. The effect of this picking out of important words is that we gather the meaning of the phrase or sentence as a whole rather than as a series of separate words. It enables us, under favourable conditions, to read by sentences rather than by words.

Very different is the reading of the beginner. He progresses painfully from word to word, and often when he has read the sentence to an end he has not grasped its meaning as a whole. The only remedy for this is practice, but we may do something to make that practice more effective. Thus, we can encourage boys rapidly to gather the general meaning of the sentence or paragraph they are reading. Before a boy reads a passage aloud he may be required to look through it; or preferably, the whole form may glance through the passage before the boy is named who is to read it aloud. The practice will tend to get boys into the habit of seizing the important words; or we may occasionally make a boy glance through a sentence and then repeat its substance without the book, stress being laid upon the reproduction of important words and the general meaning. It is also a good plan sometimes to give the boys a short time in which to look through a paragraph for the purpose of summarising it orally or in writing. It is surprising to find how short a time is necessary for the purpose after the boys have had a little practice.

The second stage in the whole process of reading is the transformation of the visual perception of the words into the consciousness of the sounds which the words have when spoken. It is not the sight, but the sound, of a word that suggests its meaning. We learn to connect the sound of a word with its meaning long before we begin to read, and the language we make use of in our thinking is a spoken, not a written, language. We mentally hear or utter the words which express our thoughts. Hence we do not pass directly from the sight of a word to its meaning, but must advance from its printed or written shape to its sound, with which its meaning is then instinctively associated.

It is for this reason that inner speech plays such an important part in the process of reading. Before we can use the words we have recognised we must have said them to ourselves or heard them spoken in our mental ears. But experiment shows that the readiness with which the shapes of words recognised by the eye pass into mental sounds varies with different readers, and that the inner speech, as a rule, lags behind the perception by the eye. Hence it is important for the reader to form the strongest possible associations between the look of words and their sound. Reading aloud necessarily tends to develop such associations, and this is one of the main advantages to be derived from the practice. Some boys, however, find this stage in the process of reading a specially difficult one, and some help may be given to them in two ways. In the first place, when they meet with new or difficult words they may be made familiar with their pronunciation by hearing them repeated and then repeating them themselves. It is a good way to make the form pronounce all unfamiliar words, as well as look at them. It should always be remembered that words are primarily sounds. And secondly, we can try to encourage in the boys the habit of repeating mentally the words read by the eye. Slovenly reading is often due to this mental repetition being careless and inaccurate. Unintelligent readers should, for instance, be asked questions which will lead them to repeat aloud part of the sentence that has been read. This is by no means waste of time, although the answer to the question may seem perfectly obvious. That the association between sight and sound may present real difficulty is clear from our own experience when we have to read unfamiliar foreign names. We may recognise these names perfectly well by their look, and yet not find it at all easy to pronounce them. In my own case, I find a tendency to slur over the pronunciation even of English names, so that at the end of a story I cannot tell the names of the characters, although I have recognised the printed form of the names as they occur. The more rapid the reading, the greater is the tendency for the mental reproduction of the sounds to become defective. Hence particular care should be devoted to stimulating this reproduction in the case of boys who read quickly and superficially.

## TEACHERS' VIEWS OF EXAMINERS' REPORTS ON LOCAL EXAMINATIONS.<sup>1</sup>

### I.—ENGLISH.

By NORMAN L. FRAZER, M.A.

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IF there is any value in the Local examinations, it should be possible to claim that they exercise a healthful influence upon school teaching; for the age of the candidates and the subjects of examination are so various and diverse that the whole range of school studies at every stage comes within their scope. It is the object of the present article to consider whether a practical teacher can extract any advantage or help from the reports of the examiners in English.

I do not propose to refer to the examination for preliminary candidates. In my view, they are wholly indefensible and pernicious—a view which is rather confirmed by noticing that these candidates are accused by their examiners of such enormities as seldom answering rightly the questions on pronouns in the English grammar paper, and indulging in much confusion with regard to transitive and intransitive verbs; all which would seem to prove that even preliminary candidates are quite normal children and may hope to grapple with grammatical abstractions in a few years' time.

To begin then with the juniors. Is there any weakness which recurs so often as to be considered typical and chronic? By such a test it would appear that the really serious fault in the juniors' knowledge of English grammar is their inability to distinguish the exact meanings of the terms phrase, clause, and sentence. As we rather suspect that they would find it difficult to make a mistake in the practical application of these terms, and as, in our opinion, the teaching of English grammar at this stage is valueless unless it be regarded as applied art, we have only one suggestion to offer: it is that English grammar should never be taken by juniors as a subject for examination, at any rate until examiners realise that it can be treated profitably for children otherwise than as a highly technical science. That examiners have not at present arrived at this point of view is sufficiently proved by their lament that the candidates' definition of tense was not complete, nay, that they were hazy as to the very function of tense, and that they actually failed to recognise the nominative absolute. In fact, there is no doubt about it; junior candidates' definitions are unsatisfactory, being both vague and inaccurate—a fact which causes us no surprise and no regret. It is instructive that exactly the same strictures are passed upon the grammar papers of the senior candidates; only in their case definitions were given glibly enough, without, however, their meaning being understood in the slightest. That is certainly a serious charge, and we can only suppose that

<sup>1</sup> See examiners' reports in THE SCHOOL WORLD, May and October, 1910, and May and October, 1911.

they, too, have had no early training in application, or rather that they have not been taught to formulate definitions from their own carefully recorded observations and comparisons—the only scientific method of dealing with so difficult a mental process.

But let us turn now to what is admittedly a practical test in application—to composition. It is remarkable that the examiners seem to be so preoccupied by the deficiencies in mere mechanical externals that they have very little to say as to the really important matters of originality and power of thought. Punctuation, writing, spelling, arrangement, and paragraphing as sent in by the juniors are all condemned; and the first and the last are evidently far from satisfactory among the seniors. What is the remedy? Writing and spelling can only be tackled by co-operation among the whole staff; and then with ease. But punctuation, arrangement, and paragraphing require far more blackboard demonstration than is usually given. Definitions of stops are perfectly useless; occasional correction—or, as is the general case, indiscriminate correction—is little better; but a comparison of a long passage punctuated *viva voce* by a class, with the same passage punctuated correctly, is a valuable exercise. For arrangement and paragraphing also, much oral class work is necessary; and when independent essays are set at last after a long course of “prepared” composition, it is still possible to demand a reasoned scheme of headings. It is certainly extraordinary to find that in letter-writing the examiners have to complain that candidates have no idea of the correct forms of conclusion, and omit such obvious technical matters as addresses and dates. Leaving such purely mechanical devices on one side, we find that juniors are apt to indulge in a wearisome repetition of the same kind of sentence. Now style is acquired usually by wide reading, and sometimes laboriously by conscious imitation. For junior Local candidates conscious imitation is obviously undesirable and wide reading an impossibility. We suggest that the practice of setting prose passages for repetition may be found helpful, by providing a general and not too particular a standard of style, while it may also be utilised as an introduction to a knowledge of ideas. At any rate, it is improbable that seniors who had assimilated even a few short passages of great prose would deserve the examiners’ reproach of writing *siang*; and it might also serve as the necessary antidote to the oral training we have thought necessary to advocate, which no doubt may be partly responsible for the examiners’ remark that candidates have to learn “that to write good English is not the same thing as to speak it.”

But, after all, the real aim we imagine in a composition test is to discover whether the candidate possesses any originality of mind or power of thought. The chief indications of success in this direction given by the examiners are the bad choice of subject, considerable irrelevance in deal-

ing with it, and a lack of logical reasoning in controversial topics. The remedies for the two first of these defects would seem to lie in opportunity and practice, but the last admits of a less commonplace solution—the school debating society, or, better still, the class debate. In the class debate the master stands as arbiter, ready to rule out non-sequiturs and illogical conclusions, before they have achieved their facile triumphs.

When we turn to English literature the commonest demerit noted by the examiners is utter irrelevance. It takes varying forms and arises from various causes. Sometimes it is due to the careless reading of questions or to want of consideration of their actual terms; at others to the “lifting” of the introductory matter to be found in annotated texts; sometimes the candidate is determined to reproduce something he has heard in class, without any exercise of thought; at others a mistaken zeal in quoting largely from the text merely for the sake of quoting, is responsible. Whatever may be the cause, the result is the same; to questions requiring thought the commonest answers are chiefly remarkable for verbosity and irrelevance. The reason, we feel sure, is that most of us have not yet made up our minds as to what we are aiming at in our teaching of English literature. We have swung back in our reaction from the purely linguistic treatment of literature to the other extreme of vague appreciation. We are content to let our pupils read and enjoy, without making sure that they *understand*. Appreciation has become a synonym for vague enjoyment, rather than for intellectual understanding and sympathy. But how is this sympathy to be secured? Certainly only by mental effort. And as a test of sustained mental effort, oral discussion is apt to be delusive; a variety of written exercises is essential. Let us take the reading of a Shakespearean play to illustrate what happens. An interesting class discussion arises as to motives or characters. A leading question or a chance suggestion helps many a boy to stumble on a satisfactory answer which serves to conceal a mass of ignorance; but a written exercise on the same subject, even after the class discussion has taken place, will reveal the fact that some of those who shone in the oral work have the greatest difficulty in writing a sustained appreciation. We know of no better mechanical aids than fairly frequent exercises in *précis* and paraphrase, for they must evidently be frequent enough to prevent the examiners from complaining that they are given a *précis* in place of a paraphrase. The result, our experience leads us to believe, will be increased terseness and point, and also a desirable training in the right methods of framing answers.

Were it not for the reiterated statement of the examiners, we should find it hard to believe that the annotated text is still largely used by teachers. Its use inevitably leads to that paralysis of thought which is indicated by such criticisms as these: “The answers of senior candidates to questions bearing upon individual characters, and their motives and actions in the play, consisted far too

generally of slavish reproduction of matter furnished by introductions to text-books"; "not a few candidates betrayed by some egregious mistake that they had merely read analyses or descriptions of the books"; "in the senior papers in English literature there were many whose knowledge was confined to the learning (sometimes by rote) of analysis or descriptive paragraph in some manual of literature." The sequence to the last quotation must be given by itself: "It cannot be too strongly pointed out that such labour—useless in itself—is also useless for examination purposes." We have no hesitation in saying that the more the text is made the centre of all English teaching, the less is the need for an annotated edition of it.

There are two remarks of the examiners which, taken together, may throw light on the whole question of English teaching; one refers to a general poverty of ideas, and the other to a general preference of poetry to prose in the study of literature. Can it be that just as boys choose the wrong subject for composition, so schoolmasters choose the wrong texts for the special circumstances of their pupils? We think it probable that a long tradition of reading only poetry in schools is responsible for a good deal of the alleged poverty of ideas. Poetry is wont to appear to young minds ceremonial and remote, especially when it is decked out in a portentous critical apparatus; it is too fine for daily wear, and is therefore treated with distant respect. It is this unfortunate attitude, we fear, that sends too many pupils out from our schools in a state bordering upon illiteracy, imbued with a distaste for what they can only regard as an artificial convention, and unaffected by any desire to read anything whatever.

So far we have considered the strictures passed by the examiners almost entirely apart both from the general scheme of the examinations from which they arise, and from the particular questions set on specific occasions. We commend both inquiries to the English Association as providing useful occupation for a representative sub-committee, and, in the meantime, content ourselves with offering a few remarks upon the former. In our opinion, no syllabus of English literature can be satisfactory, at any rate in the junior stage, unless it is required by the special needs of the particular school; and consequently, unless it forms a part of a reasoned whole, covering the complete school course. On any other system the exigencies of choice make a progressive course impossible. If, owing to practical difficulties, the system of submitting alternative schemes cannot be adopted, there is still the possibility of omitting English literature altogether from the junior examinations—a remedy not quite so heroic as it looks now that it has been adopted by one school examining body. Modern secondary schools are wonderfully varied in standard and aim; we venture to say that there is hardly one in England which, if left to itself, would have

planned a course of reading in such a way that its pupils of an age to take a senior Local examination would be reading the particular books set by the Cambridge delegates this year: "A Midsummer Night's Dream," "Paradise Lost," v. and vi., "The Tempest," "Waverley," and sixty pages of Matthew Arnold's poems, or Outlines from 1579. While English literature is so divorced from the pupil's orderly development we must not be surprised at poverty of ideas, or even at the deplorable deficiencies in elementary and mechanical externals.

## II.—LATIN.

By W. F. WITTON, M.A.

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**I**S it worth while continuing to teach Latin? The question must have presented itself to many a schoolmaster on reading the reports of the Oxford and Cambridge examiners. The former speak of "countless blunders in composition" and "unprepared translation badly done by nearly all"; the latter find "ignorance of inflexions and grammatical terms," and "a number obviously unfit." This last phrase sums up the situation: boys are being sent in for public examinations after insufficient preparation, and the result must be disaster and discouragement. And the teacher is generally to blame; A bows to parental wishes; B prepares his class and sends them all in *en masse*; while C remembers that at twelve he himself was reading Vergil, and cannot understand how anyone can fail. But fail they do, at least in Latin.

Apparently neither teachers nor examiners have fully realised that the standard of attainment in Latin is now lower, age for age, than it was twenty, or even ten, years ago, in practically every one of the secondary day schools of England—I except the public schools, for in them conditions have not altered so much—and there are three reasons for this: first, the widening of the curriculum, with the consequent overcrowding of the time-table; second, the influx of pupils from elementary schools; and third, the confusion arising from the attempt to adapt methods of teaching to the altered conditions. On the first point there is no need to enlarge. Latin now gets a smaller share both of time in school and of the pupil's energy; in many schools one Latin lesson a day is an unattainable ideal.

With regard to the second point, let me say at once that I do not regard it as any disadvantage to a boy that he does not begin the study of Latin until he is twelve. I have known many boys so beginning who have gained high honours in classics, and can fortify myself with the opinions of the many teachers whose views were published by the Classical Association in the sixth volume of their Proceedings, all testifying to the value of even a short course of Latin study. But I hold that to be valuable such a short course must be

preceded by some elementary grounding in the meaning of grammatical terms. At present boys are leaving elementary schools without the slightest linguistic sense whatever, unable even to pick the verb out of a sentence. If you tell one of these boys, when he says, "I done it"—and many are capable of saying it, and even writing it—that he has used the past participle where he should have used the past tense, he is none the wiser, for he knows not the meaning of the terms. Such a boy may perhaps learn *accidence* as well as another, but he is hopeless when he is set to use the forms; after weeks of teaching he cannot turn into Latin "the girl shows the way to the husbandman" with a sure and certain knowledge that he has got the cases right. If the first year of a Latin course must be taken up in learning the names of the parts of speech, and the meaning of such terms as "subject" and "predicate," then, so far as Latin goes, the time is lost. I am sure that teachers of modern languages will bear me out when I say that the refusal to teach English grammar in the elementary schools is the cause of half the troubles of teachers in secondary schools.

To pass to my third point, I do not wish to suggest that "direct methods" cannot successfully be applied to the teaching of Latin, but only that they are not calculated to prepare pupils for examinations such as the Locals. On the face of it, it is only reasonable that the results of conversational lessons should be tested by a *viva voce* examination, and not on paper at all; and there are not wanting teachers who on these grounds, among others, hold that there should be no external examinations of any sort until the school-leaving age is reached. The merits of different methods can then be tested by their results; there is no common measure for the processes.

But all teachers of Latin, whether they have adopted "direct methods" or not, must have realised that the old way, with its mechanical mastery of *accidence* and conscientious *construe*, is too cumbersome for present requirements, and have had to decide for themselves what they would abandon. Unfortunately, many in making their choice seem to have been influenced by that pestilent modern heresy that lessons must be made "interesting," as if it were not the essence of all education to teach the pupil to do with a good grace that which he knows he must do, but would much rather leave undone. Presented with the choice between *accidence* and literature, they have chosen literature, and, taking their cue from the syllabus of the examination before them, have put their class to study the "set book" as carefully as a totally inadequate knowledge of syntax and *accidence* allows. And they would resent the charge that this is mere cram; they are sincerely anxious to secure for their pupils the literary and critical training which the reading of Latin authors can so well give; but they forget that, unless the language is understood, they would do better to confine their study to a good English

translation. With the sound knowledge of *accidence* cast overboard, and after it the formal *construe*—for how many chapters of Caesar can you read in a term if you *construe* every sentence?—the result is that the Cambridge examiners find "ignorance of the commonest inflexions and grammatical terms," and those from Oxford speak of candidates who "do not know what 'to parse' means." Again, to make things easy—that fatal easiness!—pupils are permitted to use elaborately annotated texts: it saves so much time if you can turn to the notes instead of working out a solution to a difficulty for yourself; and, brought up thus, they never acquire the faculty of teasing out the meaning of an involved sentence for themselves, and naturally fail when set to translate an unseen passage without help.

It cannot be said that examiners expect too much of the candidates, unless it be in the matter of vocabulary, about which I have something to say below. The questions are generally fair and straightforward; it is only as a mere detail that one could carp at an examiner who, while deprecating cram, and professing to ask only such questions as candidates might answer from their own knowledge and observation, complains that the peculiarities of Vergil's syntax were not understood. Possibly the candidates had read no other Latin poet but Vergil, and quite innocently took his syntax to be normal. Anyhow, so long as they understood what he meant by his words, and had some notion as to how the words might express that meaning—no easy thing to get always in reading Vergil—it is surely a little matter that they did not know what other phrase he might have used, but did not.

No; the reason for so much unsatisfactory work is the hurry of the teachers, who, in their desire for reading, sacrifice that which alone makes reading possible. *Accidence* and syntax must be learned; not necessarily as a preliminary to anything else, for much writing and some reading is possible with quite a small knowledge of *accidence*. Nor need the entire *accidence* be studied, for the grammars contain much lumber. *Filiabus*, we may hope, is dead; *respublica* and *iusiurandum*, as single words, might well go the same road: two-thirds of the gender rules might be discarded; it is of little use to the average student of Latin to know that *cucumis*, *pollex*, and *hydrops* are masculine, and *splen* and *furfur* neuter; while even in the case of commoner nouns I would rather have a pupil of mine know the meaning of *collis* than its gender; overboard, also, may go fully half the irregular verbs, together with the detailed knowledge as to which parts of *aio* and *inquam* are not used; the pronouns, too, may be shortened, for not much need be known of the forms of *aliquis* and *quisquam*. As regards syntax, too, it would not be difficult to devise a short scheme giving all the essential uses of cases and moods in quite a brief compass; in fact, there is perhaps only one part of the "book-work" that could not be shortened, and that is the



chapter that deals with prepositions, the usages and meanings of which are generally treated rather inadequately. And what a saving it would be if the Terminology Committee of the Classical Association could produce a set of grammatical labels which all teachers of languages could use!

But whatever grammar is taught must be taught thoroughly, beyond all possibility of *amavitur*. It takes time, but it is time well spent, for the boy or girl who is not safe on common accident is nothing but a linguistic cripple all through the piece. And when the reading of an author is begun there should be constant practice in parsing and analysis, and a high standard of accuracy may well be insisted upon. If at the end of two years' work a boy has learnt to construe Caesar rapidly and correctly, he has not done badly.

Meanwhile, there remains the difficulty of vocabulary; it seems impossible for boys nowadays to "pick up" enough words to enable them to translate any passage that may be set them, even though the passages may be chosen from specified authors. Either, then, examiners must say beforehand what words they expect candidates to know, and gloss all others, or they must allow the use of a dictionary. For myself, I should incline to the latter alternative; if I were called on to determine whether a boy had acquired a reasonable proficiency in Latin after four years' work at it, I should set him to translate four or five fairly long, but straightforward, passages from Caesar, Livy, Vergil, or Ovid, some sixty or eighty lines in all, and provide him with a small dictionary, such as the little "Smith," and a couple of hours' work would settle the point. If the other course is preferred, the Universities of Oxford and Cambridge might follow the example of the University of Wales, which has published an alphabetical list of rather less than two thousand words, the meanings of which matriculation candidates are expected to know; or a book such as that of Mrs. Dawes might be adopted as the standard vocabulary. For the present it seems necessary to build up a vocabulary systematically, at first by setting lists of words to be learnt, and later by means of retranslation exercises based upon the reading, and by training pupils to deduce the meaning of compounds from that of their components, a process which boys, at any rate, very seldom think of performing for themselves.

It will be seen that I am basing my appeal for a partial return to older methods upon an acknowledged need for greater accuracy. Whether such a compromise as I suggest would meet the case, or whether some more drastic remedy is required, such as the limitation of the number of languages taught concurrently, only experience can show. For myself, I cannot believe that the boy of today, taught by masters who are generally only too anxious to adopt the most effective methods of teaching, is incapable of learning Latin as well as did the generation which preceded him.

### III.—HISTORY.

By A. M. WALMSLEY, M.A.

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THE student of educational controversies can find no more attractive field than that of history. There he can still riot in destructive criticism, for, in spite of all that has been done during the last few years, few "history" men can be satisfied with the present condition of their subject in the curriculum. Until the numerous problems now under discussion can be solved, it is scarcely to be expected that examinations in history can be so satisfactory to the examiner, or so profitable to the examinee, as those in such subjects as science, mathematics, or modern foreign languages, which are essentially practical rather than culture-subjects. But all these problems are beyond the scope of this paper, which will be confined to a consideration, from the teacher's point of view, of the criticisms contained in recent reports of the examiners.

There is one preliminary question I wish to emphasise, for upon our answer to this depends the view we take as to what constitutes a satisfactory examination paper under present conditions. In setting a paper, what type of boy has the examiner in mind? The average boy does not exist; if the expression has a definite meaning, it refers to what most boys ought to be (in our opinion) rather than to what they actually are. It is necessary, therefore, to take a concrete example for a standard, some boy who occupies an intermediate place between the broad base and the apex of our pyramid; and, in doing so, the temptation is irresistible to choose a standard from the few near the apex. Such a course may easily be defended on the ground that it is necessary to raise the standard of the examination paper, and a glance at the papers set during recent years will show that this has been done. The situation may be summed up thus: Examination papers have advanced steadily towards the ideal; as instruments to test whether a candidate possesses the historical sense, or historical culture, they are far more effective than they used to be; but the standard of the answers remains unsatisfactory, thus proving that many of the candidates do not possess the historical mind, and are not fit subjects to take such papers (*i.e.*, with profit to themselves). My argument, therefore, is that the modern tendency is to set questions of too great difficulty, considering the limitations at present inseparable from the teaching of history in schools.

It is a truism that musicians and poets are born, not made: no one who has taught literature or history will doubt that this assertion is equally true for these branches of culture. Hence the unsatisfactory position of history in the curriculum, and the unsatisfactory examination results, which must continue until we recognise the truth that "no pupil should have forced on him by examination pressure a culture for which he is

naturally unfitted.”<sup>1</sup> It is a common thing now for boys to choose history as a “soft alternative” to Latin; others, who have no real taste for history, take the papers on the off chance of “scraping through,” and thus increasing the total of their marks. In contrast with these “undesirables,” there are boys in every school whose interest in history is easily aroused, and, with the recent improvements in text-books, methods of instruction, and examination papers, the gulf between such boys and the non-historical, hopeless “crammers” widens. Music, perhaps, would be more likely to touch the souls of the latter! Or perhaps the day will come when we can turn them into the school garden or on to the school farm!

My opposition, therefore, is to the limitations under which history is still taught in schools, rather than to the difficulties of the modern examination paper. None the less, I think that, under existing conditions, the papers are too hard: such questions as “Describe the effect of the war with France in 1793-1815 on the wealth and commerce of England” (Cambridge Junior, July, 1911), or “Describe the main features and results of the Industrial Revolution” (Cambridge Junior, December, 1910), are too difficult for the majority of boys at fifteen; and such a question as “Describe the development of Parliament in the thirteenth century” (Cambridge Senior, July, 1911), is up to university scholarship standard, if not higher.

Having touched briefly on what I consider to be the most serious limitation under which the history master has to work, I will consider the defects which are most frequently mentioned in examiners’ reports. Some are “hardy annuals,” and are more difficult to remove than an outsider might think; others, often due to carelessness, are so simple that they hardly seem worth mentioning. Thus, it may come as a surprise that senior candidates are weak in *spelling*, and in the great majority of cases this ought not to be possible. Though this is chiefly a question for the English master, it is worth while to direct attention to spelling mistakes or errors in style in all written work. Ability to use one’s mother-tongue is certainly a great asset in a history examination, but unless the pupil acquires this art at home he is likely to be severely handicapped. English (*i.e.*, ability to read a book intelligently, to talk about it afterwards, and to express one’s thoughts in writing) might figure more prominently in the curriculum of lower forms, for in the higher forms the usual two periods a week for history do not allow for much incidental instruction in English. This defect is responsible for the meagreness of style of which the history examiner also complains.

The remedy suggested in the reports is the use of larger and better text-books. These certainly are required, and now that the markets are flooded with so many excellent, up-to-date books, there is no excuse for schools that fail to take advantage of this. It is to be feared, however,

that many schools, either from reasons of economy or from indifference to the requirements of history, cling to certain old and unsuitable compilations. Cannot examiners and inspectors help to remove this complaint, without necessarily compiling an *Index expurgatorius*? But a good text-book is not an adequate remedy; more written work in history is essential. This does not mean that a history master should spend his evenings in reading and correcting papers which would only be thrown aside afterwards. My own practice, during the term before the examinations, is to set from four to six questions on each reign or section; these are prepared as written homework each week (or written in school without reference to books), and one of the two lessons is given up to reading and criticising the essays. It is possible to get through ten or a dozen such essays in an hour’s lesson, and as each boy reads his own, careless or foolish mistakes soon disappear. Occasional test-papers are set in school, under examination conditions, and these are carefully corrected. These always bring to light unexpected and unnecessary errors, and the method is found particularly useful for candidates for the university junior local examinations.

A second complaint is that *in many cases candidates do not possess a knowledge of geography adequate for an understanding of history*. The interdependence between the history and the physical features of any region is one of the earliest facts to which the modern teacher of history directs attention and therefore this criticism can apply only to those schools where the requirements of history are not recognised. It must be understood that good orographical maps are necessary for the teaching of history, and that no war or single campaign can be understood without reference to the relief of the country. To some extent the English teacher of history here suffers from a limitation not found in other countries, where a general study of modern history precedes a detailed study of the history of one’s own country. Thus the French or German teacher has several obvious examples to draw upon in proving the importance of geographical controls, whereas in England we are in danger of generalising on insufficient data, or it may be that an important generalisation escapes notice altogether.

Historical geography is a wide subject, and the question therefore arises, “What knowledge of historical geography does the examiner expect in a junior or senior candidate?” Ability to mark on a map the position of such places as Moidart, Culloden, Newbury, Naseby, &c., may be a good memory test, but it is not necessarily a proof that the candidate knows anything about the principles of historical geography. A pupil who has studied one war in detail, and has learnt to apply these principles in this case, has learnt more history than one who can merely mark on a map the approximate positions of various places chosen from many different campaigns. My argument, in brief, is that time forbids the teaching of the principles of historical geography to junior

<sup>1</sup> Mr. P. J. Hartog’s paper read before the Educational Science Section of the British Association at Portsmouth, September, 1911.

and senior candidates for all the campaigns in their period, and therefore geographical questions should be confined to a few of the most important campaigns; there should be alternative questions, and the place-names in each question should be limited to a single war or campaign. There is too much geography, just as there are too many dates, in history for the schoolboy to know all.

The same difficulty arises with reference to *dates*, of which the examiners frequently report that candidates have an inadequate knowledge. I believe that the modern distrust for dates in the teaching of history has been carried too far. Memory work is essential to the study of history, and for schoolboys it is a useful exercise to repeat the list of English kings with dates, for until the history of modern times is reached these are the best milestones for marking distance. It is also a good thing to learn certain events in inseparable connection with their dates—*e.g.*, the Petition of Right, 1628, or the Habeas Corpus Act, 1679; in these and similar cases the event should inevitably call to mind the date, and *vice versa*. Some form of a date chart should be compiled by every boy, and this, when completed, should be committed to memory and frequently revised. Variety can be introduced into oral questioning on the date chart, but this form of drill must not be allowed to take up much time, and obviously the chart should not be overcrowded. Thus, in answer to the question, "What knowledge of dates should be expected in junior and senior candidates?" I suggest the following:

(1) Dates of the leading events throughout their period. One method is to choose the leading event which gives the key to each decade's history—*e.g.*, Court of Star Chamber, 1487; Marriage Alliance with Spain, 1501; Flodden Field, 1513; Field of the Cloth of Gold, 1520; Fall of Wolsey, 1529, &c.

(2) A more detailed knowledge of dates in connection with certain outstanding events in the whole period. This detailed knowledge cannot be acquired by schoolboys for every important event in the period, and therefore alternatives should be set where questions require a chronological framework—*e.g.*, "Trace in outline down to the death of Canute the steps by which the Danes established themselves in England" (Cambridge Senior, July, 1911). In some cases alternatives are set to such questions, but it should be an invariable rule.

A fourth weakness which the examiners have emphasised in recent reports is that *the correct meaning of certain terms is not known*. Here is another source of error which has only to be recognised in order to be removed in the majority of cases. It is certainly true that boys are often ignorant as to the correct use of certain historical terms, and it is probable that many history teachers have failed to notice this weakness, and have assumed that these terms will be understood, just as we assume too readily that a boy of

thirteen knows how to read a book. History has its technical terms, and power to use these correctly is something definite to be learnt. For junior candidates every chapter in a good text-book contains such terms, and other words which are unknown to them; for the latter a reference to the dictionary will be enough, but for the former a list might well be made in their notebooks.

The next two complaints I wish to deal with are important because of the frequency with which they are made. In many cases *candidates completely misunderstand the question*. This is a question for psychology, and no attempt can be made to explain it here; its truth is undoubted; contact with boys soon shows that its solution is not so simple as an outsider might think; carelessness is not the only cause; therefore, in setting examination questions, every allowance should be made for this youthful characteristic, and the slightest ambiguity of expression should be avoided. Something may be done by directing attention to the weakness in criticising their written work. As an occasional exercise, I have allowed junior candidates to set their own examination questions on certain chapters in their text-books. This gives them a definite aim in reading, reveals what impressions they are most likely to carry away, and also leads them to think about the meaning of questions. For senior candidates, a useful exercise is to choose, as subjects for the weekly essay, a number of questions dealing with the same subject, but differently worded and requiring different treatment.

Another complaint, equally common with the preceding one, is that *candidates frequently answer in short, jerky sentences, tabulate their answers, or produce an outline essay divided into sections by the use of numbers and letters*. This is naturally taken to be evidence of cramming, but possibly in some cases it is due to lack of experience in written work, or is the result of teaching based exclusively on oral work and notes from dictation. It can be remedied, therefore, by practice in written work, and by making it a rule that history questions should always be answered as essays, and not in the form of notes.

The few remaining criticisms can be dealt with briefly. It is frequently reported that *candidates studiously avoid questions requiring intelligence*; yet this is hardly to be wondered at. Such an answer requires more time for thought, and if six questions are to be answered in 90 or 105 minutes, the candidate's chief thought is the race against time. How much logical reasoning, in addition to memory work, can we expect from two lessons a week (perhaps three-quarters-of-an-hour periods), with one half-hour period for homework, say eighty hours (or one week's hard work) for the whole year's preparation! And what, if we further prove that we are forcing a culture-subject on a boy who has no natural taste for it! Again, the boy assumes that all questions are of equal value, and it is unnatural to expect him to choose the more difficult without some induce-

ment. To suppress, or even to compress, knowledge is a lesson slowly learnt by boys, and this characteristic is *partly* responsible for another weakness, *i.e.*, the tendency to answer at inordinate length and to burden an answer with irrelevant matter. I say "partly," because this tendency is certainly encouraged by the vagueness and brevity (allowing of vague treatment) which mark so many questions in history papers; this, I think, is an unsatisfactory feature in junior papers. What will a junior candidate do, in fifteen minutes, with such a question as, "Give a short sketch of the chief events of Mary I.'s reign"? Or again, "Write short lives of Cardinal Wolsey and the Protector Somerset"? What is a boy to say, and what omit, in writing a life of Wolsey in seven and a half minutes? Examiners seem to rely on a lavish use of such adjectives as "short, brief, concise, or careful"; but I think that the answers would be more satisfactory if the questions were more definite, or if, in some cases, they contained some guidance as to the arrangement of the answer. At the same time, the tendency to irrelevancy may be checked by practice in written work. There are certain broad types of questions, such as the life of a great man or the account of a rebellion; these can be treated in similar paragraphs, and a few attempts with some guidance in arrangement will soon show what a boy can do in fifteen minutes.

A suggestion which often underlies the reports is that the equal importance of written work, oral teaching, and private reading is not always recognised, and probably this is partly responsible for unsatisfactory results. But under existing conditions we can only hope to "scotch," not to kill, these weaknesses. We shall probably have to recognise, as has been done in the teaching of Greek and Latin, that, while it may be an honour to make our subject compulsory, such a course is fatal to a high standard of teaching.

## AN EXPERIMENT IN ELEMENTARY WOODWORK.

By T. S. USHERWOOD, B.Sc., Wh.Ex.  
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### II.

Sans contredit on prend des notions bien plus claires et bien plus sûres des choses qu'on apprend ainsi de soi-même que de celles qu'on tient des enseignements d'autrui.—Rousseau.

THE second model was either chosen by the boys themselves, or certain typical objects, such as a footstool, a drinking trough, &c., were mentioned, and the boys were asked to select one which they would like to make. Then, in order to impress them with the great importance of making and working from a properly dimensioned drawing, boys who so desired were allowed to start the actual construction of the selected model without such drawings, as soon as they were pre-

pared with a statement of the materials required and could show that they had some definite idea of the methods of construction they proposed to employ—that is, they may, if they choose, work from a rough sketch. Under such conditions most boys will attempt to dispense with the drawing, and although time is wasted apparently by such a method of procedure, it is of real educational value to allow each boy to complete his model, no matter how poorly designed, how artistically impossible it may be.

Suppose we consider in detail the case of a boy choosing the footstool. Let him complete the stool, and then test by standing or jumping on it. In most cases it will be found that the stool collapses or buckles, owing to weakness of design, and the boy may be asked to suggest methods of bracing, the insertion of "rails," or alterations in the direction of the "grain" of

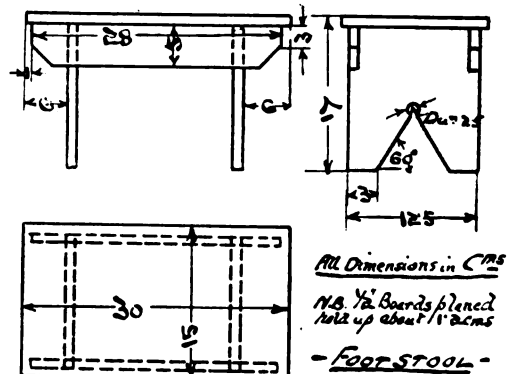


Fig. 7.

L.T.S.H.

the various parts so that this failure may be prevented. He may then be allowed to place struts, ties, &c., where he thinks they are necessary. The appearance of the average model, altered and completed in such a way, may be better imagined than described; but in a class of twenty or thirty boys one or two will generally be found capable of making a satisfactory stool, and their models may be selected as types for examination, criticism, and illustration of the principles involved. The class is now probably ready to admit the necessity of making proper working drawings, of adopting a definite routine in setting out their work, of paying proper attention to the direction of the grain in the various parts of the model, and of constructing the model after some recognised type.

The helpless cases may now be shown a dimensioned sketch (Fig. 7), and told to draw plan and elevation in their books, while those boys whose models showed signs of thought, care in workmanship and treatment, or originality of design and construction, may be allowed to proceed with their own models—modified where structural weakness rendered it advisable—and to make the necessary working drawings of the type they had selected in cases where this had not been done

already. After the ordinary views had been made, an isometric view should be added and so shaded as to distinguish the direction of the grain, as in Fig. 8. Each boy should then be made to

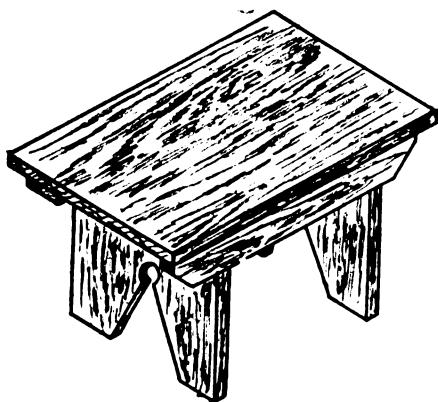
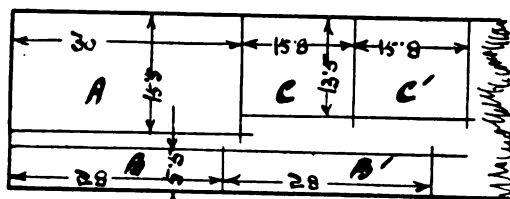


Fig. 8.

T.S.U.

prepare a statement of the quantity of material needed and, on receiving the wood, proceed with the "setting out on stock," as illustrated in Fig. 9. This particular arrangement is adapted for *edge planing on one edge only* of each part of the model; and in "setting out," as throughout the whole course of work, the instructor must be prepared to pass many uneconomical, many very unsatisfactory methods of marking off, and consequently there will be much avoidable waste of material, unless the method illustrated, or some equivalent method which saves time, energy, and material, be evolved in the course of discussion with all the boys who are making the stool. This discussion is a salient feature of the scheme, for nothing is more fatal to the proper development,



Setting Out on Stock: - 9" x 1/2" Boards  
Dimensions in Inches

Fig. 9.

T.S.U.

to the whole spirit, of manual work than to have a complete course of exercises and models ready cut and dried, in which nothing is left to the pupil's initiative and judgment. In their struggles with the first footstool attempted the boys saw that the appearance (to appeal on one point only) of the model would be much improved if the edges of the boards were planed. For the second stool

they are provided with ready-planed material of a certain width (9"), and they will readily acknowledge that the method of setting out shown in Fig. 9 is adapted to avoid unnecessary labour; while if this, or some equivalent scheme, is suggested by or elicited from the boys themselves, so much the better. In the figure given, part A forms the top; it is marked off 15.5 cm. wide, and 0.5 cm. must be planed from one edge after it is sawn off. Parts B and B' form the rails; they are marked off 5.5 cm. wide, leaving 0.5 cm. for edge planing on the rough sawn edge. Similarly, C and C' form the legs, and planing on one edge is again necessary. In each case, however, the exact length required is marked off, so that the more difficult operation of end-planing is not called for. After marking off, B and B' are ripped in one piece, and may either be planed thus or sawn in two, placed together, and planed in this position. C and C' are prepared similarly, the shoulders at the top being marked off by the aid of the rails, so that they may be of the exact shape and size required. There is no difficulty in eliciting this method of marking off from the boys if

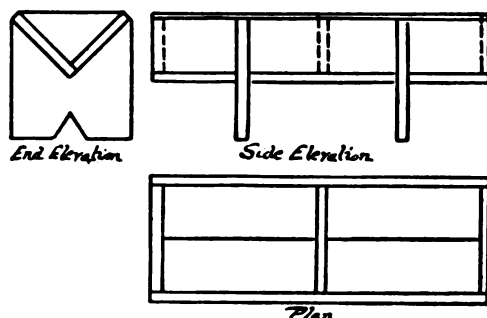


Fig. 10.

T.S.U.

judicious leading questions are asked. C and C' are then placed together, the hole bored, and the angle pieces at the bottom sawn out. If it is thought advisable, these angles and the bevels at the ends of the rails B B' may be finished with the chisel, thus conveniently introducing another important tool. Good workmen, too, might be allowed to make hand-holes of various designs in the top of the stool, using brace and bit, bow-saw, &c. Legs and rails are then fastened together with suitable wire nails, care being taken that the structure is "square," and finally the top is fixed in position. The appearance of the model may perhaps be improved by covering it with leatherette, but even in its roughest form it is particularly valuable and appropriate at this stage of the development of the experiment from its simplicity, the wide latitude it permits, and its general appeal to the interest and constructive ideas of the boys.

Other diagrams are given as illustrations of what can be done by boys of twelve. Fig. 10 shows plan and elevation; Fig. 11 the "setting out on stock" of a small cattle-trough, designed

and carried out by a beginner, a third-form boy, practically without assistance. Fig. 12 shows the trough in isometric projection, and illustrates the only error of any importance in his method of construction. The boy arranged the grain in the three end and divisional V pieces to run vertically, as is shown in the setting out on stock in

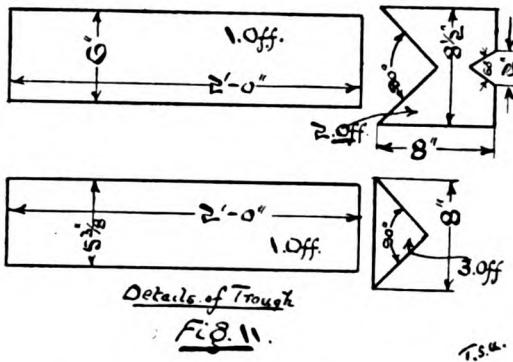


Fig. 11, whereas it should run horizontally, as indicated by shading in Fig. 12. Two elevations of a small pair of steps, designed and constructed in a similar manner, are shown in Fig. 13. Many other examples might be given, but perhaps those selected and illustrated will serve as types of the objects which can be made by boys in the rough carpentry course, which is designed to serve as an introduction to woodwork generally.

To recapitulate, the method recommended is, briefly, this. Some object which can be constructed easily by the methods of rough carpentry is suggested to, or selected by, the boy, who, in the first place, makes a rough sketch embodying his ideas of the finished shape and indicates the leading dimensions; he then determines the quantity of material he considers necessary, and applies to the instructor, showing the sketch he has made. Unless the method of con-

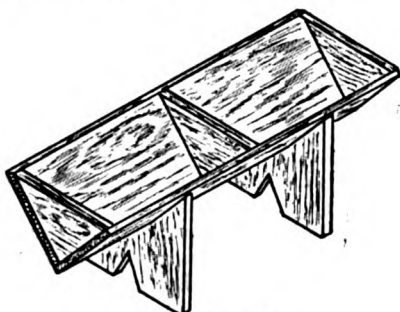
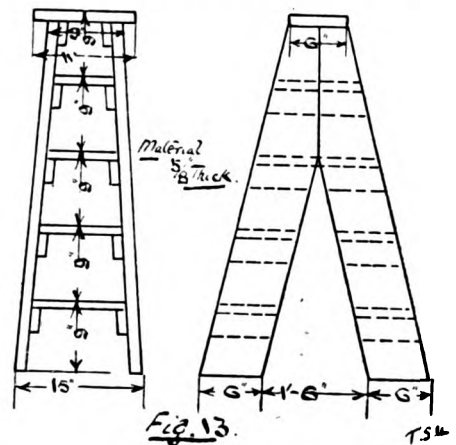


Fig. 12.

struction proposed is frankly impossible, he is given the material required and allowed to complete his model, generally introducing modifications as he proceeds. On completion, the model is criticised and tested, while methods for its improvement are elicited or suggested. Properly projected views and an isometric sketch of the

amended form of model are then drawn, and notes are made on this drawing, directing attention to the chief alterations in design and method of construction; new principles which are worthy of consideration are also noted. The model is then "set out" as economically as possible and completed to the improved design. If the idea and plan originally suggested could not pass, some assistance would, of course, be given, but it is important that as much of the work as possible be an expression of the boy's own activities, both mental and physical.

In the course outlined there are many opportunities for observation lessons—that is, for the assimilation of new facts with the knowledge and interests already part of the boy's equipment. The work, too, readily lends itself to correlation, particularly from the mathematical aspect. If the executive side of the work is to be successful, continual planning and reflection are necessary, while there is but little possibility of the work proving monotonous either to boy or instructor, as may easily happen where a cut-and-dried



routine limits the scope for initiative and development. As a reasonable and not a hard-and-fast standard of accuracy is easily determined for each individual, there is little danger of over-emphasis on the mechanical side, and it is evident that the whole course tends to the cultivation of that power of "thinking in shape" advocated by Thring.

Stanley Hall says:

To focus on process only, with no reference to the object made, is here an almost tragic case of the sacrifice of content to form, which in all history has been the chief stigma of degeneration in education. Man is a tool-using animal; but tools are always only a means to an end, the latter prompting even their invention. Hence a course in tool manipulation only, with persistent refusal to consider the product . . . has made most of our manual training schools ghastly, hollow, artificial institutions. . . . In all hypermethodic schemes the thought side is feeble. . . . In most of its current narrow forms, manual training will prove to be historically, as it is educationally, extemporised and tentative, and will soon be superseded by broader methods. . . .



Whatever may be said of the method just described, it cannot be accused of focussing on processes only, for while these receive some consideration they are but secondary and incidental to the finished object in these elementary stages. The method, too, being unstereotyped, does seem to cultivate that resourcefulness and inventiveness which is so essential a factor in development; while by eliminating "drill" and "examples" at the beginning, one makes sure that the insight required in applying such processes as are discovered to be essential receives due consideration, each boy framing every problem for himself, and—under guidance—devising schemes for its solution in the true research spirit.

The success which has attended the experiment during the short period it has been tried, and the keen interest with which the boys appear to regard every variation, every new development, together with the wide scope for initiative and originality which the method outlined clearly allows, seem to justify the hope of the writer that his attempt to introduce woodwork on broader lines is a move in the right direction, and that the present account may be of some value to all interested in manual training.

### GEOGRAPHICAL BOOKS FOR THE SCHOOL LIBRARY.<sup>1</sup>

By B. C. WALLIS, B.Sc., F.C.P., F.R.G.S.

**W**HETHER "In Lotus-land: Japan" (1) should be included in the school library for general use by the pupils is a matter which the teacher must decide for himself; but there can be no hesitation in recommending this first-hand account of some of the aspects of Japan and the Japanese to the teacher, who will probably desire to use as many as possible of Mr. Ponting's illustrations either in the form in which they occur in the book or in the enlargements which can be obtained.

The text is so replete with good features that it is difficult to direct attention to more than a small number, notable among which must be the account of the artist-craftsmen of Kyoto at work in metal, in ivory, and in enamel. From the strictly geographical point of view the frequent references to volcanic activity, to the numerous hot springs, and the chapter on cultivation near Uji make the volume valuable for school work.

From both the historical and the geographical point of view the monograph on the Columbia River (2) is suitable for the school library. The first part deals mainly with the historical aspect

and treats of the discovery and the exploration of this magnificent river, which has a volume of water equal to that of the Mississippi. The early days of any part of the North American continent are interesting reading for young people, and the account of the Indians, the struggle between the nations for possession of the river valley, the first journeys across the continent, the fur traders and their adventurous voyages upon the waters of the river, and finally the work of the miner, the cowboy, and the builder of both houses and railways, besides being in itself of surpassing interest, is well related. The first part illustrates the inevitable connection between the historical and the geographical elements in the development of any part of the earth's surface and on account of the comparative simplicity of the history it is possible to estimate quite easily the importance of the relief of the land in affecting the progress of the people who dwell therein. This process of interaction between the people and their environment is still in active operation in so simple a way that the young pupil can easily realise the dominant features of the changes which occur. For this purpose the maps which are appended to the book are very suitable.

The second part deals with a journey down the river from the source in British Columbia to the sea, which the river enters between the two States of Oregon and Washington. Geographically the river is notable as one of the most important rivers which rise in the Canadian Rockies and flow westwards, and because of the way in which it cuts transversely through the Cascades to the sea. The whole area bears traces of volcanic and glacial activity, and these features are presented so simply as to appeal even to the comparatively ignorant. The development of human life and of the cultivation of wheat and fruits on the alluvial flats which abound: the story of the progress of railway building, the accounts of the climbing of the snow-topped peaks such as Mt. Adams, the description of the beauties of the lakes such as Lake Chelan are eminently readable, and, in addition to the splendid photographs of the cañons and other natural features, make this work a valuable addition to any library.

The older pupils will read the third book (3) with avidity; the intense regionalism of Spain, the constant friction between the commercialism of the east, the sun-inspired contentment which amounts to laziness of the south, the hardy poverty of the north in relation to the centralising force of both Church and State at Madrid, have their effect on the life of the people in every department. Even in the methods of cooking food the individuality of the separate districts is such that a happy home life between a man of one district and a wife from another district is almost impossible. The geographical "control" due to the intense heat in summer, the great cold in winter, and to the poverty of that part of the soil which the peasant is allowed to cultivate, is shown by the primitive village life with the small earnings of the labourer, and by the absence of money in the

<sup>1</sup> (1) "In Lotus Land: Japan." By H. G. Ponting. (Macmillan.) 21s.  
(2) "The Columbia River." By W. D. Lyman. (New York: G. P. Putnam's Sons.) 8s. 50.

(3) "Home Life in Spain." By S. L. Bensusan. (Methuen.) 10s. 6d. net.

(4) "Transportation in Europe." By L. G. McPherson. (Constable.) 5s. net.

(5) "The Old North Trail." Life, Legends and Religion of the Black-foot Indians. By W. McClintock. (Macmillan.) 15s. net.

(6) "The Great White North." The Story of Polar Exploration. By H. S. Wright. (New York: The Macmillan Co.) 10s. 6d. net.

(7) "My Brother the King." By E. H. Cooper. (The Bodley Head.) 6s.

(8) "Two Boys in the Tropics." By E. H. Figgelmessy. (New York: The Macmillan Co.) 6s. net.



everyday transactions of life, which are carried on by means of barter. In many ways the picture of home life in Spain is reminiscent of home life in England before the Industrial Revolution. The account of the business of preparing and using olive oil both as one of the main articles of household use and as a chief product of agriculture reminds the reader of these early days, and the whole book emphasises an important economic truth that within the borders of a protected country the purchasing power of money may vary considerably from that of a free trade country such as England: in Spain money goes very far, while, by contrast, in the United States money goes only a short distance. The labourer in the United States earns in money much more than the labourer in Spain, and yet both just about manage to exist; to eat, work and sleep. Altogether, this book is very suggestive and should appeal to those pupils who are beginning to think of the problems of life as lived at home and abroad in the twentieth century: purely as a piece of first-hand geography it will repay study.

Teachers of applied geography, or teachers in search of interesting facts as regards the comparative value of canals and navigable rivers in relation to railways should read this book (4), written by an American who spent some time in Europe investigating the European systems of transport. Chapter vii., on International Railway Traffic, and chapter xi., on Transportation in England, should be exceedingly useful, while the odd facts on the characteristics of the internal commerce of the various countries of Europe will provide much useful material. This is a book for the teachers' reference library.

Probably that part of the geography lesson which arouses the keenest interest in the minds of teachers and pupils is the one which deals with native races and customs, and of all the indigenous peoples possibly the North American Indians are the most interesting; hence the welcome which awaits Mr. McClintock's account of the Blackfeet Indians at home (5), an account which has the inestimable advantage for school purposes of being written by a competent first-hand observer. The Blackfeet country and the present Reservations for these Indians lie where the prairie meets mountain near the upper courses of the eastward flowing rivers which are tributary to the Saskatchewan and the Missouri. Mr. McClintock describes, among other incidents, how he was adopted by the Blackfeet, winter life on the plains, not the least noticeable feature of this being the account of the effect of the Chinook wind on the snow round the lodges. Many ceremonies are described and many legends are recounted, and the illustrations, some in colour, are numerous and of real assistance in connection with the narrative.

It is well that our pupils should be brought into touch with a story of the development of one aspect of human knowledge, a story of the change which occurs in the outlook of mankind upon new things as they become better known; and for that purpose a history of Arctic Exploration will serve

admirably. Miss Wright has made an interesting story of Arctic work during three centuries (6), by allowing the explorers to tell each his own story and weaving these narratives into one connected account, and therefore the reader is faced with a story of the expansion of the human mind from the early attitude of dread to the latest attitude of exultation in the case of Peary, who has triumphed and knows. At the same time the story is one of human progress, the adaptation of man's efforts to his environment, and forms a striking instance of a geographical "control." What a change there is from the early sledge drawn by the members of the exploring party to the dog-drawn sledge of the Peary expedition with its Eskimo drivers; and what a difference between the tents of the past and the snow-built stopping places of Peary! This is a book to read.

The next book (7) recounts the adventures of an English boy and an English girl along the Russian shores of the Arctic Ocean, particularly in the Obi river. The hero is of the opinion that every Englishman knows how to rule others, especially if they be not English, by instinct, and he carries out his ideas among the Samoyedes, who invite him to be a constitutional monarch in Yalmal. His attempts at administration, his conflicts with Russian officials, are admirably told, and the book would make an interesting addition to the school lending library. This is an example of fiction adapted to education.

In earlier notices in this article stress has been laid on the advisability of supplying the pupil with first-hand descriptive accounts of life in foreign lands, and, hence, the value of the simple account of life in the tropics (8) by a lady whose husband was for twenty years U.S. Consul in British Guiana. The language is simple, the explanations are lucid, and the descriptions are graphic, so that this story of the life of two boys in Guiana is admirably suited to the smaller boys, and girls, for whose use there is not as yet a sufficient number of similar books dealing with the whole world. Children will derive great benefit from this book, especially in regard to the story of Robinson Crusoe.

#### THE VALUE OF SCIENCE.<sup>1</sup>

THERE are many reasons why a boy learns science. One is because he finds it an entertaining thing to work at, and because it satisfies a longing to know something of how the world in general works. That seems to me to be the best of all reasons, and I propose to try to justify what I have said. The word "science" simply means knowledge, though it is usually applied to knowledge that can be verified. We are told that Queen Anne died in 1714, but it is not a fact that can be verified. But if we are told that if we place chalk in acid we shall get a gas which has the property of

<sup>1</sup> From an address by Mr. Francis Darwin, F.R.S., at the opening of the new science buildings at Shrewsbury School on October 20th, 1911.

putting out a lighted match, we have something that can be verified. I mean that we can do the thing for ourselves and see the result, and then feel that we are equal with our teacher. We know that fact in a perfectly different way from that in which we know that Queen Anne is dead. When science began to flourish in Cambridge about the 'seventies there was a great demand on the University for money to build laboratories, and an eminent person objecting to this call for money made the remark, "What do they want with their laboratories? Why cannot they believe what their teachers tell them, who are, in most cases, clergymen of the Church of England?" Well, that eminent person had no conception of the profound difference that exists between the thing which we find out for ourselves and the thing which we are told is true.

Another character of scientific knowledge is that it gives one the power of prediction. It enables us not only to foretell, but, as Prof. Huxley said, to "backtell" also. It is difficult to talk about a subject without seeming to imply that one thinks it better than all other subjects. Well, I do not mean to say this, nor do I wish to imply that the kind of mind that excels in science is either better or worse than the mind which excels in art or literature. But I am glad to think there are points on which science is the equal of literature or art—I mean in giving man some of the highest pleasures of which he is capable, in making him realise the wonder and beauty of the world.

I have spoken of the power which science has of knitting together a number of facts into a theory; and when those theories are wide enough they are called the laws of nature. Those great generalisations, the laws of gravitation, or evolution, or chemical combination, of course have a beauty and dignity which appeal to everyone. But on the practical side of science it seems to me that there is an extraordinary wonder and beauty simply in the bigness and smallness of the distances with which man deals. On one hand we have the astronomer, who measures not by miles but the distance by which light can travel in a year; on the other hand, we have the man who works at bacteria and who measures by microns, 25,000 of which go to make an inch. To me there is more fascination in the very little than in the very big, because, perhaps, my work has been more in that direction, and it seems to me always a wonderful fact to think that a big tree, such as an oak tree, is made up of countless millions of cells, small wooden boxes manufactured by minute living masses of protoplasm.

Well, then, there is the human interest in science which ought never to be neglected. There is, I think, extraordinary interest in seeing some of the classical experiments by which men have advanced knowledge, such, for instance, in chemistry, as the work of Black and Priestley and others. But the real excitement, the real fun of science, begins when one finds out something

for oneself, something that was not known before. This has been rather pompously called "original research," and it seems to me very interesting in my father's life to see how his passionate love of sport gave way before the love of discovery. Some of the delight of discovery can be had by the merest learner. Of course, they are not very likely to discover something that has not been discovered before, but they can very well discover something which they themselves did not know before; and that is to them personally as good as the most brand-new discovery.

Science teaches us to face the facts of life squarely and honestly; it helps us to avoid all false conventions, pretentiousness, snobbery, and all superstition—the whole tribe of shams connected with the name of Mrs. Grundy, that great tribe which clogs our attempts in striving after a rational and decent freedom. My last reason for saying that science is worth learning is that practically the bodily welfare of the whole human race as well as of man's friendly animals and friendly plants, the whole of this great mass of life really depends on accurate knowledge about every conceivable fact in the world. We ought to cultivate a respect for all facts. A thing when discovered may seem absolutely useless, and may remain in a sort of dormant condition, no one recognising its use; and then on a sudden it may find a place in the useful knowledge of man. The two most exciting sciences are physics and pathology; physics because it is letting us into the secret of the structure of matter in a way of which past generations had no idea, and pathology because we are getting to know something about the nature of the most deadly and cruel diseases in the world, and getting at methods of curing them of which again past generations, and very recent generations, had no conception.

I should like to say one word of warning. Because these two sciences which I have taken hazard are so brilliant and exciting in their character, I hope that no worker at science will take upon himself to despise the work of people who are doing work in more humdrum departments. I think that everyone who takes an interest in science should feel that he belongs to a great guild that contributes to the happiness of the human race.

#### PERSONAL PARAGRAPHS.

ON April 1st of next year Manchester will be losing the educational services of Mr. J. H. Reynolds, who will reach his seventieth birthday in February. Mr. Reynolds at present holds the offices of director of higher education and principal of the Municipal School of Technology, and has been connected with technical education in Manchester for nearly thirty-three years. According to Sir T. T. Shann, Manchester's high position in technical education is largely due to Mr. Reynolds. It was in 1879 that he was appointed secretary of the Mechanics' Institution, which developed into the School of

Technology, and he entered the service of the Corporation as director of technical instruction. When the City Council erected the great school in Sackville Street it founded an institution which has no parallel in the kingdom in point of equipment or breadth of curriculum. In 1902 Mr. Reynolds received from the University the degree of Master of Science, and was afterwards made Dean of the faculty of technology and a member of the Senate. The committee which accepted the resignation placed on record its "high appreciation of Mr. Reynolds's long and valued services to education in the city of Manchester during the past thirty-three years."

\* \* \*

BIRMINGHAM has suffered an educational loss by the death, at the age of sixty-eight, of Father John Norris, D.D., Superior of the Birmingham Oratory. He was born in Liverpool in 1843, and educated at Merchant Taylors' School, Crosby, whence he proceeded to the Catholic Institute, Liverpool, and to Ushaw College. He was ordained priest in 1869, and became headmaster of the Oratory School in 1872. He made himself a recognised authority on secondary education among Roman Catholics, was several times chairman of their Conference of Headmasters, sat on their Secondary Education Council.

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THE principalship of Stockwell Training College, vacant by the death in July last of Miss Lydia Manley, has been filled by the appointment of Miss S. E. S. Richards, M.A. (Lond.). She took honours in the final examination for the B.A. degree of London University, holds the Cambridge Teachers' Diploma, and is at present mistress of method and superintendent of women students at Armstrong College, Newcastle-on-Tyne.

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IN succession to the late Sir Nathan Bodington, Prof. Michael E. Sadler has been appointed Vice-Chancellor of Leeds University. Prof. Sadler, who is eminently a *persona grata* with the whole of the teaching profession, is fifty years of age. Educated at Rugby, and at Trinity College, Oxford, as a scholar, he took first classes in classical "Mods" (1882) and in Lit. Hum. (1884). In his "Mods" year he was president of the Union. For ten years (1885-95) he was secretary of the Oxford University Extension Board, and I have not forgotten my interview with him in that capacity in his office in the New Examination Schools. He was a member of the Royal Commission on Secondary Education appointed in 1893. In 1895 he entered the Education Office as director of special inquiries and reports, being the first editor of the series of monographs on Continental and American systems of secondary and commercial education. This office he resigned in 1903, and was appointed professor of the history and administration of education in the Victoria University, Manchester. He is a member of the Consultative Committee of the

Board of Education. It may be said with confidence that the appointing committee was right when it formed the opinion that in Prof. Sadler Leeds would have "a Vice-Chancellor who would reflect credit on the University, and in whom they could safely repose their trust and confidence."

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MISS ISABEL CLEGHORN, president of the National Union of Teachers, who recently received the honorary degree of M.A. from the University of Sheffield, on November 10th received the same honour from the University of Wales at Bangor.

\* \* \*

To the principalship of Queen's College, Harley Street, vacant by the resignation of Canon G. C. Bell, Sir Henry Craik, K.C.B., M.P., has been nominated, and the nomination has been approved by the Bishop of London, visitor of the college.

\* \* \*

PROF. CHRYSAL, who had occupied the chair of mathematics in Edinburgh University since 1879, died early in November. He was born in 1851, and educated at the Grammar School and University of Aberdeen, and at Cambridge. Second Wrangler in 1875, he was appointed Regius professor of mathematics in St. Andrews in 1877. At Edinburgh he effected an improvement in the standard of mathematical teaching.

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THE first of the new divisional inspectors under the Technological Branch of the Board of Education has been offered to Mr. Gannon, who has resigned his post of principal of the Woolwich Polytechnic to take up the appointment.

\* \* \*

THE new president of the Association of Teachers in Technical Institutions is Dr. James Clark, since 1908 rector of the Academy and director of the Technical School, Kilmarnock. He has spent several years on the Continent studying the educational systems of Germany, Switzerland, and France.

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THE death took place recently, at the age of eighty-two, of Mr. F. B. C. Tarver, formerly an assistant-master at Eton College. He was born at Eton, where his father was French master, in 1828, educated at Eton and Merton College, Oxford. He was associated with his father's work at Eton, and ultimately succeeded him.

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THE sudden death of Dr. R. D. Roberts, in the midst of his important work of organising the Congress of the Universities of the Empire to be held in London next July, will come as a great shock to the many with whom he was brought into contact. He was sixty years of age, having been born at Aberystwyth. He was educated at University College, London, and Clare College, Cambridge, as a foundation scholar. He became a fellow of Clare and also of University College. After a brilliant university career, in 1879 he was appointed university lecturer in geology at Cam-

bridge. In 1885 he became secretary to the London Society for the Extension of University Teaching. More recently he was appointed registrar of the Board for the Extension of University Teaching, in connection with the University of London, and secretary and lecturer to the Gilchrist Educational Trust. As registrar of the University Extension Board, Dr. Roberts directed the inspection and examination of secondary schools for the University, and was well known to the heads of the secondary schools of London, Surrey, and Middlesex.

ONLOOKER.

### THE TEACHING OF HOUSECRAFT.

THE publication by the Board of Education of an "Interim Memorandum on the Teaching of Housecraft in Girls' Secondary Schools" is most opportune in view of the amount of discussion to which the difficulties in connection with its subject have given rise; bringing together, as it does, the practice of typical schools, and presenting in a convenient form the detailed syllabuses drawn up by a number of experienced schoolmistresses, it should prove of great service just now.

Many science mistresses have recognised for a long time that to give the science instruction in girls' schools a complexion similar to that received by their brothers is to ignore the special needs of the girls in later life. Though the whole curriculum of girls' schools has hitherto been fashioned too much on the pattern of what has grown up in schools for boys—a result of the want of initiative and innate conservatism of the pioneers in women's education—the divorce between the character of their lessons and the demands upon them when they find themselves called upon to administer a household has been most clearly defined in the case of the science work of girls in secondary schools.

The recognition of these facts has given rise to the demand for courses of work in "home science," "domestic science," "housecraft," and so on, intended so far as possible to train girls at one and the same time in the methods of science and in the practice of the domestic arts. Existing schemes of instruction differ between wide limits, and as yet there is no unanimity among schoolmistresses as to what exactly girls ought to be taught, and at what stages of their school career the various subjects, which it seems to be felt the course should include, may best be begun.

As the memorandum points out, two solutions present themselves when the present methods of approaching the question are examined. These are:

- (1) Independent courses of science and housecraft, which may be concurrent or consecutive; or
- (2) A correlated course, *i.e.*, a "single combined course."

Good arguments are offered by the advocates of both these plans, and the memorandum summarises them very usefully.

The arguments on either side may be stated as follows:

I. In favour of the combined course it is contended—

(1) That a science course with a housecraft bias is educationally better for girls than a science course of the ordinary type, inasmuch as the latter tends to be academic and unreal.

(2) That no intelligent study of housecraft is possible except in close connection with scientific principles and methods, and that this is best supplied by means of related or "domestic" science.

(3) That the introduction of a fresh subject into the curriculum is thereby avoided, and the time-table difficulty does not therefore arise. (This is only true if the time for domestic science and housecraft is not greater than the time that would be given to science.)

II. On the other hand it is urged—

(1) That in practice domestic science courses do not provide so good a scientific training as science courses of the ordinary type, because—

(a) They are conceived more or less in the interests of practical subjects which appear only in a partial degree to be capable of scientific treatment.

(b) They fail to provide in the schools courses of instruction of progressive difficulty.

(c) They easily degenerate into simple observation work, coupled with "useful information."

(2) That while it is perfectly true that science work of the ordinary type is often academic and unreal, the remedy is to improve the science work by insisting on the necessity for everyday illustrations, and that this need not involve what is involved in "domestic science" courses, *i.e.*, a different orientation in the teacher's attitude to her subject.

(3) That so long as a considerable proportion of girls in secondary schools are prepared for matriculation and other university examinations, or desire to study science for its own sake, or to study an unrelated branch of science such as botany, it will not be possible to substitute "domestic" science for science of the ordinary type (except in special housecraft or technical departments) without sacrificing the interests of an important part of the secondary-school clientele.

(4) That in the present dearth of mistresses qualified to teach both science and housecraft, the experiment of placing the domestic science and housecraft work in the hands of one mistress leads to failure on one side or the other. On the other hand, if the two aspects of the combined subjects are entrusted to separate mistresses, there is a practical difficulty in effective correlation.

The feeling among many science mistresses is that there is a danger of losing the training in the strict methods of science if the problems of the home—many of which are complex and obscure—are allowed to interfere with the logical order and strict presentation which characterise a good course in science. All, or at least all who recognise that the primary business of the school is to educate girls in the true sense, admit that it is essential that every girl should become acquainted with the scientific method; but what may be called the reforming party maintains that it is quite easily possible to give a course of work in which an experimental introduction to the scientific method is given, and in which all illustrative examples are drawn directly from the domestic sphere.

There is here, in fact, an excellent field for

educational research which may be commended to the attention of science mistresses. Two results must be secured. The girl must have a training in experimental science, the primary object of which is to inculcate scientific habits of observation, the power of simple reasoning leading to definite conclusions, and accuracy. She should leave school able, also, to apply the fundamental principles of science to the problems which every day present themselves in the kitchen, laundry, and elsewhere. It should not be beyond the powers of secondary-school mistresses to evolve a scheme which provides a preliminary course of physics and chemistry extending, say, over the two years from twelve to fourteen, which, while ensuring the ends sought by the ordinary science teacher, yet illustrates every principle from everyday occurrences in the home, followed by a second two years' course of what may, for want of a suitable name, be called "applied science," in which an attempt of a successful kind is made definitely to apply what has been learnt to specific problems arising in cookery, laundry work, and other departments of household management.

A complete system of housecraft instruction will, of course, take cognisance of other arts. Of these only needlework may here be mentioned. So far as this is concerned there is little difficulty, though it needs to be pointed out that to be as educative as possible the instruction in this subject must be closely related both to the lessons in arithmetic and those in the drawing school. Girls should have practice in determining from their patterns the amount of material required for the garment being made, and, as opportunity arises in higher classes, the designs to ornament certain articles of dress should be the girl's own work in her drawing lesson.

It may be urged that the adoption of some such plan as has been suggested makes no provision for girls who wish after leaving school to pursue a college course in science leading to a degree. She, it is said, must take a matriculation examination, and as yet to do this she must offer a branch of science studied on conventional lines. This is largely true; but already university authorities are beginning to realise the necessity for recognising the special case of girls. In the Joint Matriculation examination of the Northern Universities, girls may take up "housecraft" instead of pure science; and there is little doubt that the University of London would adopt a similar plan if the modernising of the science work in girls' schools in the directions indicated became general. In fact, we understand that it is even now possible in the case of schools taking the Senior School examination for the purposes of matriculation. Nor need a girl taking such a course of home science be handicapped as compared with another who studies chemistry or physics in the usual "academic" way. Competent authorities maintain that an equally good introduction to science can be given by either plan, and that future progress towards a degree is in no way impeded by

what may be called the more rational course of procedure.

The memorandum supplies much valuable information as to the progress which has been made already in answering these and other questions, and we hope and believe that it will receive the attention it deserves from all competent school-mistresses and from those inspectors and others who exert an influence on the curricula of girls' schools.

#### THE HEALTH OF THE CHILDREN.

THE annual reports of the Chief Medical Officer of the Board of Education continue to increase in bulk as the work of the department extends and establishes its organisation. The latest issue—that for 1910<sup>1</sup>—follows the lines of its predecessors, and furnishes indications of a general progress as substantial as could be expected in the circumstances: for it must be remembered that the work initiated by the Board was primarily one of investigation; that only by the defects thus revealed could be fully ascertained the physical needs of the children concerned; and that not until these were known could effective measures be devised for remedying them. In the present early stage of the movement, anything like detailed comparison between the returns of different years must necessarily be incomplete and, indeed, misleading. One cannot usefully generalise upon data collected under so many varying conditions; and one can, with safety and in fairness, do little more than attempt to indicate the general trend of things. Thus, generally speaking, the findings of medical inspection in England and Wales during the year 1910 were much the same as those recorded in the previous year. But, although, as a result of the unhealthy conditions thus brought to light, not a little had been achieved by many education authorities in securing greater personal cleanliness and in treating children suffering from remediable ailments, the effect of such ameliorative work has not yet had time to show itself, or to modify materially the health returns of the country as a whole.

Such rough percentages as can be stated for the country as a whole have not yet been materially affected. Speaking generally, it may be said that out of the six million children registered on the books of the public elementary schools of England and Wales, about 10 per cent. suffer from a serious defect in vision, from 3 to 5 per cent. suffer from defective hearing, 1 to 3 per cent. have suppurating ears, 6 to 8 per cent. have adenoids or enlarged tonsils of sufficient degree to obstruct the nose or throat, and thus to require surgical treatment, about 40 per cent. suffer from extensive and injurious decay of the teeth, about 30 to 40 per cent. have unclean heads or bodies, about 1 per cent. suffer from ringworm, 1 per cent. from tuberculosis in readily recognisable form, from 1 to 2 per cent. are afflicted with heart disease, and a considerable percentage of children are suffering from a greater or less degree of malnutrition. It cannot be doubted that in

<sup>1</sup> Annual Report for 1910 of the Chief Medical Officer of the Board of Education. [Cd. 5925.] iv+313 pp. (Wyman). 1s. 3d.

the aggregate this formidable category of disease and defect means a serious amount of suffering, incapacity, and inefficiency, which at least must greatly limit the opportunity and diminish the capacity of the child to receive and profit by the education which the State provides, and must involve a continual increase in the national burden of sickness and disablement.

Towards securing the ultimate remedy of such disabilities, lesser or greater, there is but one sure and certain means of approach—careful, systematic, and periodical medical inspection: not the mere routine collection of superficial data in the mass, but the careful and accurate study of each defective child. And in this direction the results already arrived at abundantly enforce the pressing necessity of appropriate medical treatment—both prophylactic and curative. The complex problems which have to be considered under each and all of these heads are indicated in the various sections of the report dealing with the several conditions therein enumerated; and the methods which have so far been adopted by different education authorities to this end are usefully compared and criticised. Foremost amongst all the physical defects from which school children suffer, defective nutrition stands out as the most important.

Indisputable though the fact is, there is no subject the elucidation of which is more baffling to the medical inspector, no condition more difficult accurately to estimate, with causes more complex and interwoven. Every child found suffering from defective nutrition requires, therefore, individual study and thought; yet in practice and in many areas such close personal attention can only be given at present to children in whom the defect is observable in considerable degree. There is evidence, however, that the requirement for such careful observation of even these children is not fully appreciated by many school medical officers.

In the course of his introduction, Sir George Newman restates an old truth in the new light afforded by recent legislative proposals.

At a time when Parliament is devoting increased attention to the question of the health of the people as a whole, it is particularly important for local education authorities to bear in mind that the health and physical condition of the six million children on the school registers lies at the foundation of the health of the adult population. The conditions of life, both in respect of personal hygiene and of environment, which result in a high mortality among infants under one year of age, lead at the same time to a high degree of sickness and disablement among children of school age; and in the same way, and probably in even greater degree, sickness and disease of children lead to disease and disablement among adolescents and adults. It cannot be otherwise. Every step, therefore, in the direction of making and keeping the children healthy is a step towards diminishing the prevalence and lightening the burden of disease for the adult, and a relatively small rise in the standard of child health may represent a proportionately large gain in the physical health, capacity, and energy of the people as a whole. As a general proposition, it may be said that a State cannot effectually insure itself against physical disease unless it begins with its children.

This general proposition may be stated even more narrowly. Many of the diseases and physical disabilities

of the adolescent and the adult spring directly out of the ailments of childhood. For example, malnutrition, "debility," dental caries, adenoids, and measles in childhood are the ancestry of tuberculosis in the adult. They predispose to disease, and are, in a sense, both its seed and soil; and thus it is that tuberculosis in the adult—which may be taken as a type and example of preventable disease—is in large part the direct development of disease in the child. The problem both of preventing and of treating the defects of children discovered by medical inspection thus assumes an import, both more extensive and more serious, than that of curing the individual child. It is true that the primary necessity is to fit the child to receive the education which the State provides. But the child's future must also be considered as a unit in the future of the State; and the whole business, both of inspection and treatment of children, must be viewed as an undertaking of absolute necessity if the health and physical fitness of the nation is first to be secured and then maintained.

In no respect, perhaps, is the complexity of the problems which attend any attempt at devising schemes for discharging the national duty thus outlined more forcibly displayed than in connection with the question of providing meals for underfed school children. State aid (limited to a halfpenny rate, to be authorised by the Board of Education), combined with local voluntary efforts, has been utilised in varied combinations to this end by several authorities towards meeting those cases in which the parents of necessitous children are unable to defray the cost—which averages, roughly, about  $2\frac{1}{2}d.$  to  $3d.$  a meal; and numerous children have benefited in this way, although better results would generally be secured were more careful supervision exercised during the meals. But there is an increasing body of evidence that these children lose weight and vigour again during the holidays—when the school meals are not provided; and one cannot regard without apprehension on their account the prospects of a future in which the weekly contribution of  $4d.$  levied on each family, already perilously near starvation, will assuredly entail a further depletion of the slender pittance now spent upon a too-scanty food supply.

There are, in practice, two tests, either or both of which will normally be applied by a local education authority in deciding, first, whether to apply their funds to the feeding of school children, and, secondly, which children shall be admissible and which inadmissible, to the meals provided—namely, the physical test and the poverty test. By the *physical test* I mean that regard is principally paid to physical evidence of bad or insufficient nutrition, whether arising from poverty or from some other cause; by the *poverty test* that the relief of the necessitous is the primary consideration, the question of nutrition being investigated subsequently, if at all. The majority of the children fed will no doubt be the same on either system; but where the Act is already in operation for the benefit of children who would be admitted to the meals, whichever test was applied, there may be exceptional cases, in addition, who would satisfy only one of these two tests.

Thus it is by no means uncommon to observe children who do not appear under-nourished and yet to know enough of the home conditions (*e.g.*, that the father is recently out of work, that there is much illness in the family, &c.) to predict with confidence that, owing to poverty, the child will quickly deteriorate in condition if

not admitted to the meals. On the other hand, there may be children from homes which are known not to be necessitous who yet would obviously profit from a course of regular meals. In admitting the latter class of children to the meals care will have to be taken, no doubt, to secure due payment from the parent.

At the best, however, and in anything like the social and economic conditions which now prevail, the work which the local education authority can do in directly preventing and remedying the evils of malnutrition has somewhat definite limits. The proper and sufficient feeding of the child is primarily the function of the home; and it is to the gradual improvement of the home that local education authorities must primarily look for relief from the special difficulties which confront them through the malnutrition of the child. To the agencies which are working in that direction local education authorities can themselves contribute materially by bringing into the home, through their own schools and classes and through their medical and nursing services, knowledge of the best ways of feeding and caring for children.

The sections on tuberculosis and on dental disease are large, in accordance with the importance of these subjects (to which the "home conscience" seems to be progressively awakening), and the difficulties which attend attempts to deal effectively with them. Practical instruction in personal hygiene appears to be making way in the elementary schools, and the foundation of really valuable results is, in many cases, being laid by courses on infant care and management.

A practical knowledge of hygiene as it applies to the care of infants is essential to every girl who now, or hereafter, is likely to be in any way responsible for the management of young children. In the case of elementary-school children this knowledge can seldom be obtained at home, and it is consequently desirable that arrangements should be made for teaching of this nature to be provided at the school. Although it is sometimes said that girls of twelve to fourteen years are too young usefully to receive such instruction, it should be remembered that in a large percentage of cases these girls, and even girls at an earlier age, are, in fact, actually in charge of infants in their own homes; and because of this experience they can not only appreciate, but in some cases put into practice, what they learn at school. It is obvious that if it were possible to postpone the teaching for two or three years, more lasting results might be obtained; when the girl leaves school, however, no further instruction is at present compulsory, and it is preferable that the instruction should be given to comparatively young children rather than they should have no teaching at all.

... but little mention need be made of disease and illness. It is not desired to teach every schoolgirl a hotch-potch of semi-medical information on the various ailments and diseases to which infancy is liable, but to give her a simple and practical understanding of those things which make up a healthy home life for little children.

The section on the education of feeble-minded children shows that this difficult problem is becoming much more concrete and more urgent. Formerly these abnormal children were ignored; now they are searched out, and their numbers and kind are approximately known to each authority.

A great deal remains to be done in the accurate and practical classification of these children, and in devising education which shall be appropriate to the limitations and disabilities of the several classes, and yet which shall not involve a cost wholly disproportionate to the benefits which it can yield. This applies particularly, perhaps, to feeble-minded children and to children suffering from various forms of disablement or from constitutional disease. Foresight and caution are needed in dealing with these abnormal children; for, whilst on humanitarian grounds it seems reasonable to give most attention to those children who need most, it must not be forgotten that the incurable child will usually absorb far more of the resources of the education authority than the child who is curable. And from the point of view of the State there is much to be said in favour of first concentrating municipal or national resources upon the child who possesses educational disabilities which are remediable.

Seven detailed appendices conclude the report. The impression derived from a perusal of the report is on the whole encouraging. So far as one can venture to judge at present, it would seem that the great movement which was initiated when the country awoke to the real scope of "education" is being prosecuted along practical lines. The nature of a territory previously almost unknown has at least begun to be realised: it is being carefully surveyed and mapped out; the dangers which it concealed are being realised, their nature and their origin are being investigated, and already efforts are being organised for their mitigation and removal. The danger to the life of the nation lies in the physical and moral deterioration of its children; and the defects of its children are mainly determined by the conditions obtaining in their home life. The majority of the defects which have been proved to exist can only be prevented from recurring and persisting in the future by a regeneration of the home. Towards such an achievement the true "education" of the children of to-day is a primary essential; and, although more than one generation must arrive and pass before the full result becomes apparent, yet every year of earnest and intelligent work meanwhile marks another step taken towards the ultimate goal; every additional child rescued from disease and reared to healthy man- or womanhood becomes a factor in the development of the saner generations which shall exploit a fairer heritage.

## SECONDARY EDUCATION IN SCOTLAND.

THE seventh annual report by Sir John Struthers, K.C.B., on the state of secondary education in Scotland maintains the high level of its predecessors. It is an intensely interesting document from beginning to end, and discusses questions of high educational polity with a frankness and sweet reasonableness rare indeed in official surveys. The report reveals the head of the Education Department in the guise of a cheery optimist. This being his seventh year of office, he takes occasion to review the work of his hands, and finds all very good. The outlook, he affirms, is more promising than it has been at any time within the limits of his official experience.



This view, expert opinion in Scotland will, with certain reservations, cordially endorse. There can be no doubt that the methods of teaching and the standard of attainments have shown a steadily progressive improvement within the past decade. The advance is most marked in English, mathematics, and drawing. In English, indeed, the teaching and the results have improved out of all comparison with former experience.

There will be general agreement also with the report in crediting this advance to two factors, specialist teachers and central schools. The specialist teacher has come to stay, but it would be folly to shut one's eyes to his defects. Prof. Laurie has said that a specialist is a man who uses up both his powers and his mental interests in one specific direction, with the result that he greatly narrows his mental range. Without accepting this dictum in its entirety, school authorities and specialists themselves would do well to recognise the element of truth contained in it. The teacher who confines his interest and his attention to a single subject to the exclusion of all else thereby renders himself less fit for giving instruction even in his chosen subject. His vision becomes distorted and his judgment warped by always keeping the same object in the focus of consciousness. German educators have provided against this tendency by insisting that, while their secondary-school teachers shall be specialists in some department of knowledge, they shall also be qualified to give instruction in subsidiary subjects. The specialisation in Scottish schools is on too narrow a basis to secure the best results.

The institution of central schools, thoroughly well staffed and equipped, is, as the report states, the only policy compatible with the great rise in the level of university attainments that has taken place within recent years. This policy is justified both on educational and economic grounds, and the Department deserves every credit for consistently and steadily pursuing it in the face of much opposition from supporters of traditional practice and of *laissez faire*. At the same time it should frankly be conceded that this policy cannot be carried out universally without gross injustice to the children in remote rural parishes. The report declares that there is no intention of withholding from any boy or girl of good ability the right of access to the highest educational opportunities. But as a matter of fact, the new system *does* render higher education an impossible ideal for "lads o' pairs" in outlying districts. Even with a liberal bursary scheme, agricultural labourers cannot maintain their children away from home at central schools. The poor boy and girl must get their higher education within walking distance of their homes or go without it altogether. "The value of fire," says Emerson, "is to have a little on one's own hearth, not to know that there is a superabundance countless miles away." Education must be brought to the child when the child cannot go to education. The Department is not altogether neglectful of this aspect of the case, as is shown by its qualified approval of the estab-

lishment of sub-intermediate schools in certain districts. It should, however, go a step further and encourage the provision of the best educational opportunities in the remote parishes of the Highlands and Isles. In particular, the Department should recognise that these can be provided without costly laboratories, workshops, and apparatus. The only indispensable requirements in every grade of education are pupils and teachers. But, after all, these minor defects must not blind us to the breadth of conception and the clearness of vision that mark the organisation of secondary education in Scotland. They should go far towards keeping Scotland in the van of educational progress.

Teachers cannot fail to be gratified by the numerous kindly and appreciative references in the report to their enthusiasm and deep interest in their work, as well as to the general high level of their attainments. The thoroughly cordial relations that evidently exist between the administration and the teaching staffs must prove a factor of no small value in furthering educational advance.

The following extracts should prove of interest and value to teachers of the respective subjects :

ENGLISH.—The character of the work in English naturally varies in the different schools according to the quality of the staff. There seems, however, to be good reason to be satisfied with the general indications of progress that are discernible. The vigorous interest that is everywhere manifest is due in a large measure to the enthusiasm of the growing body of specialist teachers whose ranks are being steadily recruited by men and women, who, during a course of honours study at one or other of the universities, have become infected with a love of literature and a desire to open to others the sources from which they themselves have derived such constant pleasure. As a result, the subject is day by day becoming more and more of a living force within the schools. The contrast with the state of things that prevailed even a generation ago cannot fail to be noticed by all who have had experience of both periods. In those days young people too often discovered their Shakespeare, their Scott, and their Dickens almost accidentally, sometimes even surreptitiously. As the higher stages of secondary schools were reached, and the strenuous competitive atmosphere that surrounded university entrance began to close about the growing lad, such reading was apt to be regarded as a waste of time and effort, and the study of literature developed too much into what one of our inspectors calls "a grim business of dictionaries and notes." Meticulous investigation of words and phrases and idioms blunted the appreciation of situations and characters, and effectually checked the rise of any æsthetic sense. As a result, it was only at a much later and maturer stage that the student discovered, on retrospect, how much he had really lost.

Our inspectors are unanimous in holding that the standard of achievement in written composition shows steady improvement. One of them remarks that even the work of the ordinary pupil is rising in literary value. There is more freedom of thought and originality of expression than formerly, and boys and girls of more than average ability can write in school in a few minutes without special preparation of any kind, on a theme proposed

to the class on a visit of inspection, papers that are strong, clear, and thoughtful to a surprising degree. In this connection it is perhaps permissible to refer to the really excellent work which appears in printed form in some of the school magazines. No doubt these productions are carefully prepared and carefully edited; but, even after all allowances and deductions of this kind are made, there remains in the magazines a mass of evidence that English composition, both in verse and in prose, is becoming a new and potent means of culture and of self-expression for the pupils of our secondary and intermediate schools. It is, of course, the written papers that form the touchstone by which the ultimate outcome of the work of the schools is tested, and it is pleasant to find that the chief examiner's report conveys a distinctly favourable impression.

**HISTORY.**—The teaching of history seems to be improving slowly. In the larger schools it is becoming more and more common to employ an expert teacher for the subject, and the influence of such experts is gradually making itself felt. But the visiting inspectors direct attention to two points that deserve the careful consideration of managers. In the first place, there seems still to be an almost complete absence of any systematic attempt to provide schools with that modicum of illustrative equipment which is so valuable as an aid to intelligent study. Even historical maps and the historical atlas appear to be virtually unknown. In the second place, there is need for a clearer understanding between the intermediate and secondary schools on the one hand, and the primary schools, which so largely feed them, on the other, as to the amount of history the pupils may reasonably be supposed to know at the qualifying stage. As a result, teachers in the former class of schools are fearful that nothing can be taken for granted, and endeavour to cover the whole field *de novo* after the pupils come into their own hands. Too much time is thus apt to be devoted at the intermediate stage to Scottish history; and the knowledge imparted then is too little critical, too much mixed up with legendary matter. All that side of Scottish history might easily be disposed of in the elementary school, for which it is entirely suitable. The revision of Scottish history could then proceed in the intermediate school on a higher plane, the acquired material being used as illustrative of historical movements, and the most being made of points of contact with the history of England and of Europe generally. In the post-intermediate stage our inspectors seem to feel that there might be a livelier interest in current events.

**GEOGRAPHY.**—In geography, as in history, there are unmistakable signs of progress. The large number of teachers who have given up part of their holidays in order to attend the vacation courses in geography organised by some of the provincial committees, notably that connected with the summer school at St. Andrews, deserve much commendation for their zeal and self-denying devotion. Those who have imbibed the new doctrine generally return to their duties enthusiastic as to the possibilities which the study of the earth and its phenomena presents. It is probably directly due to this that our inspectors report a considerable growth in the amount of the practical work done both in and out of school. Not only is there the usual drill with the Ordnance Survey map, but exercises are performed in surveying and measurement of surfaces, and also in connection with temperatures, latitude and longitude, finding the altitude of the sun, &c. What is chiefly wanted is a still further development upon this side, and, growing naturally out of that, a fresher and more scientific application of geographical ideas at the post-intermediate stage. Larger opportunity for this will be afforded very shortly, when the separation of geography

from history at the higher grade stage of the Leaving Certificate examination is complete, as it will be next year, when history should likewise profit by a similar grant of independence. The supply of geographical apparatus in the schools is being added to regularly. Orographical maps, however, are not so much in evidence as they ought to be.

**LATIN.**—In the report for 1910 it was remarked that the tendency towards a shifting of the centre of gravity in the matter of language teaching was becoming more and more noticeable. Most of our inspectors again direct attention to the strength with which the current is setting in the direction of French as the main language to be taken up during the intermediate course, and some of them sound a note of what is obviously genuine alarm as to the possible consequences. If Latin were being relegated to a lower place as the result of clear and deliberate conviction, and as part of a well-thought-out policy of educational organisation, there would be neither ground nor excuse for serious complaint. As it is, however, one cannot but feel that, in many cases at least, the underlying motive is nothing more than a desire to find what is believed to be the line of least resistance. So long as this is so, the resulting state of affairs is bound to be unsatisfactory. There should be fair play and a free choice for both of the possible alternatives.

This year there is little that is new to be said regarding the question of method. The reports we have received indicate a certain dissatisfaction with what is being done in the matter of pronunciation. In a fair proportion of the schools the traditional Scottish system continues to persist only slightly, if at all, modernised. Where an honest attempt is being made to follow the suggestions of the Classical Association there is still considerable weakness in consonants, a weakness which shows itself, for instance, in the neglect to articulate doubled consonants distinctly and in the voicing of *s* between vowels. In quantity the defects are even more marked. There a good deal is due to simple ignorance, and something also to the failure to recognise the difference of speech-habit, particularly when dealing with unaccented long vowels, as in *legatus*, *Romanus*, *oblivisci*, and the like. But it is open to question whether the Classical Association will not have to go further and attempt to lay down rules for dealing with "hidden" quantities before teachers can be said to have adequate guidance at their disposal. The present state of things is all the more confusing, because many of the text-books in common use have, of their own accord, advanced beyond the association's recommendations. Doubt as to quantities is, of course, a very serious barrier in the way of rapid and facile oral work. Now, whatever may be thought of the feasibility of teaching Latin as a spoken language, it is indisputable that the daily practice of rendering short sentences orally into Latin should be much more common than it actually seems to be. It would be at once conducive to speedy progress in the way of familiarising boys and girls with accidence and syntax, and productive of the right attitude of mind towards the language as a language. The proper Latin order should, of course, always be insisted upon. Too often one finds this last point absolutely neglected, the confusion in the pupil's mind being not seldom augmented by his being pushed forward prematurely to the study of Ovid, where the complicated verse-structure renders many departures from the normal prose order inevitable.

**FRENCH.**—The rapidly growing popularity of French as the main language subject of the intermediate course may, as has been hinted, be due to causes that are not

entirely satisfactory. At the same time, there is little doubt but that it appeals to the average pupil more readily than does Latin as too often taught. It is, therefore, becoming increasingly important to scrutinise the qualifications of the teachers with care, and to keep a watchful eye upon the methods employed. As to the teachers, the improvement, if slow, seems to be steady. It is still the case that a large number of those entrusted with the care of intermediate classes appear to be teaching up to the full limit of their knowledge, a state of things that can never produce the best results. At the same time, our inspectors report the presence in the ranks of a minority of genuinely capable enthusiasts—men and women who have not only a ready command of the spoken tongue, but also a sound knowledge of what scholarship really means, a thorough appreciation of literature, and a keen interest in method. When this minority becomes a majority, as in course of time it may reasonably be expected to do, most of the faults by which the work in our schools is apt to be marred will disappear of their own accord.

The methods of teaching employed, while giving a prominent place to oral work, seem usually to be based upon a compromise between the direct and the indirect.

The primary basis is indeed probably in most cases indirect, or perhaps often a combination of the two, the word being associated from the first both with its English equivalent and with what it represents. Even where the association is apt to be primarily with the English equivalent, a good deal of direct teaching is often carried on from the earliest stages. Few things seem more certain than that very good results may be got in both ways, and that even teaching based mainly on translation may be made to yield an excellent oral command of the language. Direct use of the foreign tongue as the medium of instruction is in one sense the ideal, but it may be more easily and surely reached by most of our teachers if it is not employed *exclusively* from the beginning.

GERMAN.—A year ago it was possible to speak with some confidence of an approaching revival of interest in the study of German. From almost every inspectorial district there comes this year a definite indication that the subject is again coming to its own. In an increasing number of towns on the east coast it is now being selected as the main language of the intermediate curriculum, while elsewhere one hears of comparatively large classes being formed at the post-intermediate stage in schools where the German pupils have, for the past two or three sessions, been very few indeed. The teachers are, as a rule, very well qualified, although not all of them possess those clear ideas as to the aims of language teaching, its content, and the order in which the constituent elements of the study ought to be introduced, which are essential to first-rate work. Judgment in selecting literature for successive stages, cultured taste, and scrupulous exactness in communicating the spirit and meaning of the text are among the accomplishments of the few.

Most of our inspectors remark that pronunciation during the first year or two is decidedly better than it is in French, doubtless because the first steps are very considerably easier. On the other hand, it seems to improve less in the advanced classes, and perhaps the final product is not so good. The apparently simple consonants do not, as a rule, receive enough attention, and the defects of intonation, being less noticeable than in French, are more decidedly overlooked. Phonetics are not made so much use of as in French—obviously owing to the belief that has

just been referred to—and in consequence certain characteristic features, such as the glottal stop, are unduly neglected. The part of the oral work that compares most favourably with French is probably the repetition of poetry.

MATHEMATICS.—Regarding the methods employed, there is little to add to what has been said in former reports. But the results of the revolution that has been in progress for some years past are making themselves evident. There seems to be no doubt that, as compared with a decade ago, there is a great increase in the proportion of boys and girls who can and do make a workmanlike attempt to solve problems, particularly in geometry and trigonometry. If this power has been gained at some little cost in the matter of facility in reproducing "book-work," there is no question as to the side on which the balance of advantage lies.

Of course there are dangers. A mistaken zeal for "modern" methods, or a misunderstanding of the objects of mathematical study, may lead teachers to prolong unduly the stage of experimental research, or to inflict on their pupils unnecessary "verifications" in cases where logical proof is perfectly simple and well within the grasp of boys and girls. There is practical unanimity among our inspecting staff as to the not uncommon occurrence of such misuse of purely experimental and practical exercises. The generalising of results must be taken in immediate connection with the results themselves, and it therefore follows that from the very beginning theory and practice should go hand in hand. Otherwise one of the main aims of instruction in elementary geometry is apt to be missed—the development of the power to distinguish between what is universally true and what is true only in particular cases. As it is, the box of mathematical instruments, particularly in the first year of a course, sometimes holds sway to the entire exclusion of theoretical work. Geometry then becomes neither more nor less than a drawing lesson. A hurried attempt is made to crowd in book-work in the second year, or, still more, in the third year, the upshot being that there is no room left for the all-important practice of individual deduction-work on the part of the pupils.

Trigonometry, beginning as it does at a later period of school life than any of the other main branches of mathematical study, is perhaps the most successful of all. The use of graphs to illustrate the variations of trigonometrical function is becoming more general. Graphical work deserves a word of special comment. Its purpose has, perhaps, been somewhat narrowly viewed. Plotting of points has been followed by graphs of statistics, which, in turn, have been succeeded by the graphical solution of equations. Too little use has been made of the truth that algebraic functions are continuous. In too many cases the study of graphs means simply finding values for  $x$  and  $y$ . Only rarely is the idea impressed that as  $x$  changes—the values being chosen at will—the value of  $f(x)$  varies, but is not independent, having a perfectly definite value for some assigned value of  $x$ ; and equally rarely does the idea of the underlying law become the starting point for further investigation. The principle of kneading the whole subject of graphs into the subject of algebra, instead of merely attaching it thereto as an appendage, is thus missed. A further point is that while irregular statistics are good, in so far as they aid the pupil in acquiring facility in the plotting of points, and should, therefore, be employed as the basis of occasional exercises, more use should be made of statistics such as those connected with insurance, where the operation of a definite principle can be fairly easily traced.

## A SWISS HOLIDAY COURSE.

FROM A SPECIAL CORRESPONDENT.

A HOLIDAY course of the secondary-school teachers of Switzerland has been held for the first time, and a brief account of this new and successful experiment may be of interest to our British colleagues. The course was held in Zürich, and lasted but one of the two weeks of the October holiday; but its seven days were strenuous ones. Forty-four professors, from every university of Switzerland, and—that each man might be an authority on his subject—from Berlin, Prague, and Pisa, delivered some fifty courses of from three to six lectures; and the time-table was so drawn up that the classical man, the teacher of modern languages or of science, and the mathematician might each find six or eight items daily in this holiday bill of fare to his taste—and with apparently an excellent effect on his digestion. For the aim of every course was to bring the Swiss secondary-school teacher, who is, in the great majority of cases, a man of sound university training, up to date, to enable him to catch up with the advances that scientific research has made in the last decade in his province, whatever it might be; the subjects, therefore, were not new to him; he had probably pondered over every question dealt with, and he could now see it mapped out by a pioneer who had himself covered every inch of the way.

A few examples from the courses on biology may make this clearer. Prof. Lang (Zürich) expounded the "exact principles of heredity"; he acknowledged the great value of the work done by Bateson, but had less respect for the recent teaching of the school of Galton. Lucidity of exposition is not a universal attribute of the German professor, though one finds it sometimes to perfection among the biologists—Lang, F. E. Schultze of Berlin, or Fischer of Basel. Dr. Bluntschli, who is off again now to south-west Africa to add to his collection, explained the value of the discoveries of fossil apes and men for the history of the descent of the Primates; and Dr. Stauffacher told the story of modern research on the cell and protoplasm. The English teacher will be astonished, perhaps, to hear that there were several other courses on similar biological matters; but no Swiss or German Realschule neglects the teaching of either branch of this important subject. In chemistry, too, Prof. Willstätter, of the Swiss Polytechnikum, in dealing with chlorophyll, handled a theme of equal interest to the biologist and to the chemist, and so brilliantly that all who heard him were delighted.

In the geography section, the geology of the Alps naturally played a prominent part; but room was found for a course by Prof. Biermann, of Lausanne, on England (delivered in French).

The classical teacher was introduced to the technique of excavation, with illustrations from Crete; to the problems of the most ancient phases of Italian history; to some sources of our knowledge of the later vulgar Latin; and (among other things) to prominent subjects of research in the last decade. I regret that I could find no time to attend any of these courses, and so cannot give any description.

The German language and literature had, strangely, scant room in the programme. One of the editors of the great Swiss dialect dictionary, now well on its way to completion, was to deal with research on Swiss dialects, but illness unfortunately prevented him; and courses were delivered on the teaching of German (with discussions), and on the Weltanschauungen of recent German poets. And that seemed to be all. But on looking deeper one discovered "Exercises in the Pronunciation of German" and "The

Art of Elocution with reference to the German Poetry read in Schools," by Dr. Milan, of the Berlin University! What would a gathering of Irish secondary-school masters say to a course of "exercises in the pronunciation of English" by an ex-London actor and teacher of elocution in the People's Palace, especially if he were as totally ignorant of the first principles of phonetics as unfortunately was the case here? But an ex-actor may be trusted to amuse his audience; and Dr. Milan in his recitations made ample amends.

French, on the other hand, was generously treated; and the inspiring lectures of Prof. Bouvier, Geneva, "*Exercices de lecture analytique*," were so popular that they had to be repeated. Italian, Switzerland's third official language, had one course (Lyrics in the second half of the nineteenth century). An evening was set apart for a discussion on the use of the mother tongue in the teaching of a foreign language. My experience on this important subject is limited to Basel; but here both in the two Realschulen and in the Gymnasium the text-book for English is "*The English Student*," by Hausknecht, of Kiel, which encourages the use of the translation method to the full, and incidentally leads the Swiss boy to think that one German discovered Australia and another built New York. But it should not be forgotten that this use of German in the English lesson does at least help the teaching of the "correct" pronunciation and grammar of the German of Germany—which not a single native of Switzerland ever uses outside the school, the church, or the theatre. In a word, the Swiss schoolboy learns two foreign languages at once.

English was handled in three courses. Prof. Vetter, professor of English in the University of Zürich (and at the same time rector of the great national Polytechnikum), dealt in German with the latest results of anglistic research, and Dr. Fehr, also speaking in German, with recent English writers—Wells, Hardy, Kipling, and (of course) Shaw. For Shaw is even to-day regarded by the Anglicist in Germany and in Switzerland as an Ibsen or a Tolstoi, and people still flock to see his plays, which perhaps owe their popularity chiefly to two causes: his treatment of the Englishman and the modern dearth of German playwrights. A third course dealt with the use of phonetics in the teaching of English. The language was, however, obviously crowded out by German and French and Italian, and classics, and the audience numbered in each course no more than from thirty to forty. For in the Swiss Gymnasium the study of English is optional, and therefore seriously neglected; and in the Realschule Hausknecht's single book is about all that can be read.

The three courses on history were quite exceptional in that they all dealt with well-worn themes.

For the following notes on mathematics I have to thank Rektor Dr. Flatt, of the Obere Realschule, Basel, who himself took a leading part in the organisation and conduct of the course. The course of Prof. Fueter, of Basel, on group theory was most interesting, and was rendered clear by an application to simple examples in elementary mathematics. Dr. Mauderli dealt with astronomical observations with simple apparatus, and their application to geography; Prof. Schur (Strassburg) with the foundations of geometry; and Prof. Veillon (Basel) with vector analysis. The discussions on mathematical teaching in the secondary school were of great interest and value. In one, the idea of function was the subject; in a second, the use of practical work in physics in the teaching of mathematics; and in a third, the relations between solid geometry and technical drawing. In the last case there was an exhibition of the apparatus used in four representative Real-

schulen illustrating various views on the question. Zürich is for an abstract handling of geometry, St. Gallen for ample work in machine drawing throughout the school, while in Basel Rektor Flatt steers a middle course with a preliminary course of drawing from wooden models of geometrical figures and simple machines, followed in the last two years of the course by abstract work in solid geometry and in central projection and linear perspective. Plane trigonometry and practical work in land-measuring go hand in hand with this, and spherical trigonometry is applied to practical exercises in astronomy and in geography.

In physics Prof. Einstein (Prague) lectured on recent researches, Dr. Greinacher on radioactivity, ions, and electrons, and Prof. Hahn (Berlin) on practical school work; and in chemistry there were courses of lectures on chlorophyll, colloids, stereochemistry, and (of particular interest) on modern research on albumin (Prof. Pfeiffer); in this latter work Prof. Abderhalden, of Göttingen, an old boy of the Basel Obere Realschule, has taken (with Emil Fischer, of Berlin) a leading part, with especial reference to human physiology.

There were, of course, beer-evenings, with the hearty singing of student-songs and Swiss "jodeln," and a successful gathering closed with a banquet, more singing and music, and congratulatory speeches. More than five hundred men and women from every secondary school in Switzerland had attended this first experimental course, and on every hand one heard testimony to its value.

As the only Englishman present, the writer would strongly recommend this experiment to the various associations of English masters and mistresses, and must heartily congratulate the *Gymnasiallehrerverein* of Switzerland on the wisdom of its ideas, the thoroughness of its organisation, and the complete success of this, its first experiment.

### NOTES ON GERMAN EDUCATION.

A BILL for making attendance at continuation schools compulsory in Prussia has been before the Landtag. Until recently, attendance was a matter of local option, but it is now proposed to make it compulsory in communes with 10,000 inhabitants, and to give district committees optional powers in smaller communes. As a rule, instruction will extend over forty weeks per annum, with a total of 240 hours. The total may be increased, and, in exceptional cases, it may be reduced as low as 160 hours. The time of instruction will be between 7 a.m. and 8 p.m. The clerical party and large manufacturing interests oppose the measure from very different motives. The question of social position, an all-important consideration with women in Germany, complicates the problem. Many young people of eighteen or under, yielding to such pressure as we have indicated, make for what is genteel. They endeavour to get employment as clerks in public or private offices, and by this means escape from school life. It is now proposed to sweep them into the net which captures the manual worker and the restaurant-keeper's boy. There is no doubt that the leakage has been considerable where attendance has been declared compulsory. But the continuation school by itself will not bridge the gulf between the directive and the productive forces, which is the weak point in German education.

TECHNICAL high schools and technical institutes are ready to organise *Versuchsanstalten*, but they look askance at a machine-shop where the student will wear slops and will learn, by experience, the workman's view of a process. In Berlin various societies for the training of women met

to discuss the measure last May. A resolution was passed to the effect that the Act ought to apply to girls equally with boys, that instruction should be of a practical nature, and that the continuation school should be controlled by the Minister of Commerce. The meeting favoured the exclusion of religious instruction from the syllabus, and demanded the inclusion of women on the boards of control. Two great classes of young people remain untouched—the agricultural labourer and the miner. It is probable that they will be dealt with separately in the near future. At present, political and industrial considerations make it advisable to adopt towards them an attitude of benevolent neutrality.

Of the two certificates awarded in German secondary schools, the intermediate, which entitles the holder to serve in the army for one year as a volunteer instead of for two years as a private, and the leaving certificate, which admits to university study, the former has long been a bone of contention. The situation has lately been aggravated by the recognition of the Prussian *Mittelschulen* as institutions entitled to award the certificate. The *Mittelschulen* are a kind of higher elementary school, teaching foreign languages. Those of their pupils who take a curriculum containing two modern languages, and pass a satisfactory examination, may now be given the certificate even if they are under seventeen years of age. This great extension of privilege has raised the whole question of the retention of the intermediate certificate. At first it was a document for military purposes, but altered circumstances and the wording of the certificate—"evidence of a good general education"—have caused it to become of greater importance socially. It is demanded by a large number of professional bodies as a condition of entrance on apprenticeship. It is, however, regarded as a disadvantage by many merchants, who find that the Board-school boy can write well, can calculate, and is amenable to instruction, whereas the holder of the intermediate certificate is sadly deficient in these elementary virtues.

THE real reason for the retention of the certificate is financial. The one-year volunteer pays all his military expenses, and so the national Budget benefits by some £1,200,000 per annum. The reason for an extension of privileges is the desire of the nine-class and other secondary schools to get rid of their heavy-weights. The extension will bring into conflict the *Realschulen* and the *Mittelschulen*, which many people profess to consider equivalent. This will mean that, in some respects, the work of the trained teacher who has had no university education is recognised as *gleichwertig* with that of the teacher who has attended university courses. What becomes, then, of the regulation that a head teacher must be a university man? It will thus be seen that the question strikes deep into the foundations of the German school systems. There are many who think that the easiest way out of the difficulty is that adopted in France—abolition. Others regard this step as too democratic. A middle course is likely to be followed—the appointment of a Royal Commission of inquiry. This would be hailed with approval, since it would review the numerous cramming establishments which prepare for the one-year certificate and at present escape all inspection by public officials.

At the annual meeting of the Swiss Society for the Promotion of School Hygiene, Dr. Schnetzler, of Lausanne, proposed the organisation of training classes for school janitors. The office of janitor is an important one in Swiss schools. Not so long ago a member of one of the large town school boards resigned on appointment as

janitor. An intimate knowledge of school administration is not necessary, but an acquaintance with the principles of hygiene, ventilation, heating, and first aid is considered important. In addition, ability to deal with and understand young people is a recommendation. Preference is given to young men of good character who have served an apprenticeship. They should be required to attend periodic courses in their work. When such are not available, instruction should be given by the school doctor, to whom the janitor would stand in the same position as a trained nurse to the family doctor in private practice. Discussion showed general approval of the proposals, and a strong demand was made for precautions against infection that might spring from illness in the janitor's family.

LAST January a circular relating to the care of young people was issued from Berlin. Its main object is to organise voluntary effort for the protection of children both during and after school age. Suggestions were given as to the best way of raising subscriptions, on the organisation of children's homes, and the foundation of juvenile libraries. In addition, the organisation of excursions, of visits to museums and factories, and the management of athletic exercises, find a place. Of late there has been much attention paid to the organisation of physical exercise in Germany, and the circular will do much to concentrate attention and to collate experience. One result of the issue of this circular is a report by Dr. Hagen, of Smalkalden, who has unobtrusively been carrying out a scheme of hygienic culture in his province for many years. The province, or rather district, contains about 45,000 inhabitants, of whom 10,000 are town dwellers. Years ago a special Board of Health was chosen, which began to make a medical examination of children in the schools. Then came a systematic training in gymnastics, followed, naturally, by organisations for meeting the needs of children beyond school age. Much of the work has been done by controlling committees, which receive subscriptions from private sources and grants from public bodies. During the last ten years 200 children per annum have been relieved at a total cost of £2,250, of which 60 per cent. was derived from public sources.

THE district of Smalkalden contains a large number of small tradesmen engaged in the production of small ironware. Each has usually a piece of land. To assist in its cultivation, special training in the management of fruit trees and in the care of goats, poultry, and cows has been introduced. In this way a better supply of good food finds its way into the cottage home. At the age of confirmation the question of a future career comes up. A committee explains to the child the pecuniary situation, and gives a warning, not only against possible dangers to health which may arise (and, incidentally, indicates precautionary measures), but also against the dangers of excess in athletic exercises. Other games not included in an ordinary gymnastic course have been introduced—football, basket-ball, snow-shoeing, and curling. As a consequence, an industry for supplying athletic equipment has grown up, and a general sports gala is held every year in September. As to results, Dr. Hagen finds that eight years after leaving school 85 per cent. of the population is taking regular organised physical exercise. The number of cases in the schools requiring medical attendance has diminished by some 50 per cent. There is less alcohol consumed, help with underfed and neglected children is less urgently needed, and the question of rural depopulation does not arise; the people are happy and better fed, and so are content to remain near the paternal acres.

## HISTORY AND CURRENT EVENTS.

WHAT is happening in China? Perhaps the wisest answer to this question is to say we do not know. But, according to what we can understand of the matter, the educated leaders of the country have revolted against an autocracy which seemed to them to be merely playing at "reform," and have induced a number of the less educated to join them in what we may no longer call rebellion, because it has succeeded. We are told, on what seems to be good authority, that the Government of the country has been conducted on lines which are not theoretically ideal; but that the difficulty of communication in so large and comparatively undeveloped a country, together with the always near possibility of local resistance, even if passive, to imperial decrees, has made that Government moderately acceptable to the mass of the people. One of the maxims of political science is that a nation, in the long run, gets the kind of government that it deserves, and that consideration may explain the long life of many institutions which on paper seem to be unbearable.

Is China somewhat in the same situation as England in 1640-2? The differences are great, of course; but is there, on one hand, a king who does not believe in Parliament and a Minister capable, if only he had a free hand, of dealing with revolt; and, on the other, Pym, Hampden, and Cromwells who are dissatisfied with a system which, however well it may work for the ordinary man, does not give them that share in determining the policy of their country which they think is due to them? They are wanting a Constitution, "something like a Magna Carta," as Cromwell said. They are not willing to trust a divinely descended monarch, and will prefer war, even if it lead to the existence of a standing army, to resting content with "the word of a king." We in England tried our experiment in written constitutions during the period called the Commonwealth, and abandoned it in favour of the "conventions of the unwritten constitution." But all the other "civilised" countries of Europe have adopted written constitutions, which not even Parliaments may alter; and China seems to be going in the same direction. Whether her people will be any happier for the change remains to be seen. There will, at least, be much talking.

LAST October the German Emperor made a public speech at a town which the English newspapers represent him as calling Aix-la-Chapelle. We take leave to doubt the accuracy of this report. Aachen is not a French town, and never was except for the period of history when Rome and Hamburg were also part of France. And considering the subject of William II.'s remarks, we may reasonably suppose he would have been somewhat hurt at the misrepresentation. For that speech was occupied with thoughts on a favourite subject of his—the "old Imperial Crown of Germany." He reported his father as saying to him when a boy: "The glory of the Imperial Crown must blaze out afresh. Barbarossa must be set free again from the Kyffhäuser Mountain." Readers of Dr. Bryce's book on the mediæval empire, or even of Freeman's essays inspired by that work, will not need to be told what this might imply if we took it quite literally. Why, e.g., is Barbarossa so called? To what language does the word belong? What will the House of Savoy say to this dream?

HIGH WYCOMBE, in Buckinghamshire, has been doing honour to famous men connected with the county, to "three statesmen—Hampden, Burke, and Disraeli—and to William Penn," so runs the report. Memorial windows to these were unveiled in the new Town Hall by the Mayor.

The concatenation is interesting. If the "counterfeit presentments" could talk with one another, their conversation would be profitable. But why is Penn not reckoned as a statesman? If, as we suppose, the person thus honoured is the younger Penn, and not his father the admiral, is not the founder of a State a "statesman"?—to say nothing of his share in English politics and his friendship with James II., based on their common desire for toleration, even if that desire were inspired by different motives.

## ITEMS OF INTEREST.

### GENERAL.

THE annual general meeting of the Association of Headmasters will be held on January 9th and 10th, 1912. The dinner will take place at the Trocadero Restaurant on the 9th; and the Dean of St. Paul's will preach at St. Lawrence Jewry on the 10th.

THE annual meetings of the Association of Assistant-masters in Secondary Schools will be held on January 3rd to 5th, 1912, at Merchant Taylors' School, London, E.C. The annual dinner, which will celebrate the twenty-first year of the existence of the association, will be held at Pagani's Restaurant, Great Portland Street, London, W., on January 4th, Mr. A. A. Somerville (Eton College), chairman of the association for 1911, presiding.

THE sixteenth annual conference of teachers, arranged by the London County Council, will be held at Birkbeck College, Breams Buildings, Chancery Lane, London, E.C., on January 4th to 6th next, at 11 a.m. and 2 p.m. each day. The subjects under discussion will be: "Specialisation in Schools," "Chalk, Brush, and Pencil Work in Elementary Schools," "The Doctrine of Formal Training," "The Treatment of Backward Children," and "Experiments in Schools."

THE Imperial Conference of Teachers' Associations convened by the League of the Empire is to be held on July 12th to 16th (inclusive), 1912. The programme comprises a variety of subjects, including the training of teachers (professional and university); the mutual recognition throughout the Empire of teachers' certificates; the migration of teachers for purposes of study generally and for temporary interchange of appointments; co-ordination in education, i.e., the connection between the elementary and secondary school in regard to curricula and the promotion of teachers; the working of the scholarship system in different parts of the Empire; technical education in its relation to local industries and as a preparation for general scientific and trade research; the place of history and geography in education; the English language and literature; and physical education.

A DEPUTATION representing secondary-school and technical teaching associations was received by Mr. Pease on November 14th at the Board of Education in order that the views of the profession on State pensions for secondary-school teachers might be placed before him. Mr. Acland, in introducing the deputation, said that secondary-school teachers suffer more than any other teachers from the absence of any provision for their old age. The salaries they receive are, in relation to the time and money spent upon their preliminary education, in most cases low, and no pensions are assured to them in their old age. No public need is more pressing than that the State should come forward with an adequate superannuation scheme for these teachers. The President of the Board received the deputation sympathetically, and said that if they presented

a detailed and workable scheme representing the views of secondary-school and technical teachers, and dealt satisfactorily with the questions incidental to any such scheme, he would consider it carefully from the point of view of approaching the Treasury. Mr. Pease indicated several points upon which he desired further information than had been furnished by the deputation. It was agreed that a committee should be formed for the purpose of giving the fuller information asked for, and Mr. Pease undertook to supply a written statement of the points to which he wished attention to be directed. It was agreed also that the proposed committee should comprise representatives of such sections of secondary-school and technical teachers as desire to come into the scheme.

As was pointed out in our issue for October, the formation of a Teachers' Council was one of the subjects of discussion at the successful meeting of secondary-school teachers held at Leeds towards the end of October. On that occasion Dr. McClure read a telegram from Mr. Runciman telling him that he could inform the meeting that the drafting of the necessary Order in Council was well advanced, that virtually the only point outstanding was finance, on which the Chancellor of the Exchequer must be consulted. That, said Dr. McClure, was equivalent to a promise of the Order before the end of the year. Since that announcement a new President of the Board of Education has been appointed. There is no reason to suppose, however, that this change will delay the appearance of the Order and the settlement of a matter of pressing importance.

A SERIES of resolutions dealing with the registration of teachers has been passed by the council of the Teachers' Guild. The resolutions are: (1) That the council approves of the establishment of a Teachers' Council, representative of the teaching profession, to which shall be assigned, *inter alia*, the duty of forming and keeping a register of teachers. (2) That the council approves of the suggested scheme for the composition of the council, and particularly of the inclusion of university teachers, but recommends the substitution of the word "other" for "specialist" in the title of the fourth group, as the latter term may convey an erroneous impression. (3) That the determination of the conditions of registration should be entirely reserved to the council, and that the considerations which led to the composition of the council should not be held to prejudice in any way the question of eligibility for admission to the register. (4) That inasmuch as the first Registration Council was abolished by the action of the Government, it is equitable that Government should grant to the new Registration Council an amount equal to the whole of the fees paid to the first council. (5) That the Government should provide, without charge, accommodation in the shape of offices for the new council.

A MEETING of secondary-school teachers, arranged by the Association of University Women Teachers was held at the University of London on October 28th, when about 250 teachers were present. The subjects under discussion were the Teachers' Council and the Register, and the necessity for public expression of the secondary-school teachers' point of view, in Parliament or otherwise. The following resolutions were adopted: "That this meeting of secondary-school teachers welcomes the formation of the Teachers' Council, and hopes that the various branches of the teaching profession will send to it their most capable representatives in order that the council may become an effective and useful means of self-government." "That this meeting is of opinion that the time has arrived when



the associations representing secondary-school teachers should forthwith take practical steps to secure adequate representation of the interests of the profession in Parliament, as well as on all public bodies concerned with the administration of secondary education."

As readers of THE SCHOOL WORLD may know from articles and notes which have appeared in these columns, the school journey has in recent years been growing in favour among headmasters and headmistresses. Such journeys have proved of great educational value as a helpful adjunct to the lessons of the class-room in giving reality and vitality to the ideas of the children. To popularise school journeys still further, and as a means of making accessible to teachers the experience and results obtained by the pioneers in the movement, the School Journey Association has been formed, under the presidency of Lady St. Helier. Full particulars of this most recent addition to the already numerous educational associations may be obtained from the honorary secretary, Mr. H. W. Barter, 51, Elm Grove, Peckham, London, S.E.

THE North British Academy of Arts, Newcastle-upon-Tyne, has made arrangements again to grant twelve free scholarships in music to poor but talented students who are unable themselves to pay the fees for their suitable tuition. The object is to provide a profession to students whose ability justifies the expectation that they will excel if given the opportunity. Candidates desirous of entering the preliminary examination should write, stating their age, previous training, and their parents' position in life, to Mr. W. J. Morgan, honorary secretary, North British Academy of Arts, Claremont Buildings, Newcastle-upon-Tyne.

THE recently published Queensland education report, by Mr. K. M. Grant, Secretary for Public Instruction, shows that there were 1,207 public schools open in Queensland in 1910, and the enrolment was 107,446 children, with an average daily attendance of 71.9 per cent. of the net enrolment. The teachers numbered 2,615. The gross departmental expenditure was £394,985. The medical inspector gives the results of measuring and weighing tests undertaken by him. Brisbane girls at the age of fourteen averaged (for seventy-five tested) 59.9 inches in height and weighed 92.7 lb.; the relative figures for English girls are stated to be 59.8 inches and 96.7 lb., and for Glasgow girls 57.1 inches and 82.9 lb.

THE total number of candidates at the examinations held by the Royal Society of Arts in 1911 was 28,644 (advanced, 5,134; intermediate, 12,233; elementary, 11,277). This is an increase of 2,361 upon the 26,283 candidates of 1910. All the three stages show larger numbers. In the advanced stage there was an increase of 480. In the intermediate, an increase of 893. In the elementary, an increase of 988. These figures are more satisfactory than those of last year, when there was a very large growth in the elementary and a falling off in the advanced stage. The number of papers worked by these candidates was: advanced, 5,931; intermediate (including theory of music), 14,025; elementary, 14,286; or 34,242 papers in all.

THE organ of the Training College Association (*The Journal of Experimental Pedagogy and Training College Record*, vol. i., no. 2, November, 1911, 1s. net) has recently undergone a great change, whereby it has become primarily a journal of experimental pedagogy, and only in a subordinate sense a record of ordinary training-college affairs. The change is, we think, a distinct gain, both because an important branch of educational investigation is now for

the first time represented among English periodicals, and because such work is in general best carried out by the lecturers in our training colleges. In the present number Mr. Burt, of the University of Liverpool, gives an interesting account of some experimental tests of higher mental processes and their relation to general intelligence; Dr. Nunn expounds the general principles of handicraft construction; and there are several other articles on the psychological aspects of education. In lighter vein is the amusing paper on "The Sorrows of a Mistress of Method." Though our readers will not find in this magazine anything that can be immediately utilised in the class-room, yet we cordially commend it to the attention of those who are interested in educational reform; and especially we venture to express the hope that the practical schoolmaster will be ever ready to help the accredited experimenter in all possible ways. Both the editor and the publishers (Messrs. Longmans, Green and Co.) are to be congratulated upon the production of this number.

WE have received a copy of an address on "The Educational Treatment of Stammering Children," read before the Medical Officers of Schools Association by Dr. T. J. T. McHattie, who pleaded for definite curative treatment of this inflection, and denounced the opinion that he who attempts to cure stammering is necessarily a quack. He pointed out that on the Continent, especially in Germany, classes for stammerers under medical supervision have produced beneficial consequences, and that many of the so-called cures consist of some trick of speech which has to be assiduously practised, and is frequently forgotten when most needed. He suggests two methods: first, drill in breathing and voice production, and, secondly, suggestive therapeutics, so that by hypnotic suggestion the stammerer may gain confidence in himself. In the subsequent discussion emphasis was laid upon the first of these methods; and it was stated that 50 per cent. of the Hamburg children had been cured, and only in one case was there no improvement, after an experience lasting over three years.

RECENT issues of the American *Journal of Geography* are replete with interesting matter for teachers of geography. One article deals with common mistakes in geography—e.g., "warm air rises" should be "warm air is pushed up"; "desert soil is usually thought to be poor soil" should be "desert soil lacks moisture, not fertility"; "the sky is no more a real object than a rainbow, but is the appearance produced by the reflection of blue light." We cull the following from "A Geography Teacher's Examination": "Do you regularly make use of the diagrams and illustrations in your text-book? They are often more effective than a printed description"; and the following from "A New Zealand Examination in Physiology": "On the North Canterbury coast a warm, still morning in winter is generally followed by a cold, damp, easterly wind in the afternoon. At times, even in winter, a dry and warm wind blows over the Canterbury Plains from the snow-clad mountains on the north-west. Explain as fully as you can the causes of these winds, with special reference to their temperature and humidity." There is also an interesting article on "Laying the Emphasis in Teaching the Geography of Asia," in which the author pleads for a grasp of Asia as a whole in contrast with Europe, and for some knowledge of India, China, and Japan only. Generally, the two numbers for September and October manifest signs of a reaction against placing the physiographic elements of geography too prominently before the pupils; and in one article, on "What is Geography?" the point is made that the real content of

geography is not an abstract relation set up by science for the furtherance of its ends, but the real concrete relation of co-existence.

DR. ALFRED A. MUMFORD, in his annual medical report on the Manchester Grammar School, gives a general comparison of the physical stamina of the whole school during the last five years with the years 1881-6. *School Hygiene* states that there has been a remarkable gain in nearly all directions, especially as regards height and weight, amounting to more than 1 inch in height between the ages of thirteen and sixteen, and to an average increase of more than 4 lb. in weight. At the age of sixteen the boys are  $1\frac{1}{2}$  inches taller and 8 lb. heavier than a generation ago. The improvement is less marked at seventeen and eighteen years of age, and disappears in those who stay until nineteen. These calculations are based on more than 6,000 measurements. The chief reasons for this change are ascribed to the steady diminution of postponement of early infectious disease in childhood, and the increased attention given to athletics and physical exercise.

#### SCOTTISH.

THE annual meeting of the Secondary Association of Scotland was held in the Marischal College, Aberdeen. Mr. Leander M. Fyfe, Glasgow, presided over a large and representative gathering. Principal George A. Smith, in welcoming the association to Aberdeen, said that an increasing number of the students of the college enter the ranks of secondary-school teachers. The remarkable progress within recent years in secondary education has been largely due to the high attainments and character of the teaching staff. If this advance is to be maintained, a large amount of elasticity will have to be introduced into the curriculum, and the teachers freed from much of the multifarious and superfluous clerical work that now is required in secondary schools. Mr. Fyfe, in his presidential address, dealt in an interesting and comprehensive manner with the present educational outlook. After directing attention to the new ideals in secondary education, he said that no system of higher education, no matter how wisely it is designed and organised, can be ultimately successful which is not built on a strong and solid foundation of primary education. All engaged in secondary schools are agreed that this condition is awaiting in the case of many of their pupils. Primary education lacks definiteness, concentration, and precision. For this he meted out blame to the Department for overloading the curriculum, and to the inspectors for setting up the impossible ideal that pupils should reach the qualifying stage for entrance to higher education at the age of twelve, utterly regardless of the innumerable circumstances that make such a result impossible. Dr. J. G. Kerr, Allan Glen's School, was elected president for the ensuing year.

THE foundation-stone of the new training college which the Edinburgh Provincial Committee is erecting in the Canongate was laid on October 21st. Lord Pentland, Secretary for Scotland, had undertaken to perform the ceremony, but illness prevented his being present. The speech which he had intended to deliver was read by Prof. Darroch, while Lord Provost Sir William Brown acted as Lord Pentland's deputy in the ceremonial part of the proceedings. In the course of his address Lord Pentland paid a high tribute to the work done by the churches in connection with the training of teachers. But in recent years the increasing demands for additional expenditure upon buildings, equipment, and staff had made it necessary to transfer the burden of training colleges to shoulders broad enough

to bear it, and so provincial committees were established in each university centre. The change had been effected just in time to meet the greatly increased demands for trained teachers. In 1904 the total number in training under the churches was 1,041; last year it was 2,917. He was pleased to be able to say that the untrained teacher, once rampant in Scotland, would soon be extinct, as after 1913 no person would be admitted to the profession of teacher who had not reached a high standard of general education and obtained a thorough training in the science and art of his profession.

THE conference of representatives of the general councils of the four Scottish universities was held in Perth to consider the new regulations for the award of open bursaries in the arts faculty, and the proposal for establishing a system of inclusive fees. In regard to bursaries, it was agreed to recommend that every candidate should take four subjects, English, another language, and mathematics or science being compulsory. The fourth subject could be chosen from a wide option. The question of inclusive fees brought out strong differences of opinion. Eventually the following motions were carried by narrow majorities in most cases: (i) That the conference does not approve of the principle of inclusive fees. (ii) That if a system of inclusive fees be adopted, it should be possible for graduating students to have the option of the present system of individual class fees. (iii) That the amount of the inclusive fee should not exceed £30 for an arts course, and £60 for a science course.

A DRAFT of the new superannuation scheme for Scottish teachers has at length been laid on the table of the House of Commons. An accompanying explanatory note states that the new scheme is much more comprehensive in its scope than the existing Superannuation Act. That Act has reference only to certificated teachers in State-aided schools, while the new scheme applies to all teachers who hold any form of certificate from the Department, including teachers of higher and special subjects, provided only that they are employed in a permanent capacity in schools in receipt of grants from the Department. The new scheme further provides largely increased benefits for teachers. Contributions, which take the form of a percentage of salary, are to be on a money returnable basis. The scheme differs in one material respect from the draft scheme submitted to teachers and managers for consideration. In the latter the pensionable salary is to be the average of the last five years of service, while in the new scheme it is the average salary throughout the whole period of service. The balance in favour of the original scheme is more than redressed, so far as the great majority of teachers is concerned, by the substitution of one-sixtieth for one-eightieth of pensionable salary as the basis of calculation. The scheme has received the practically unanimous approval of every grade and class of teacher.

ANOTHER stage in the fight for a revision of the scheme for allocating grants from the Education (Scotland) Fund was reached when the Secretary for Scotland received a large and influential deputation at the Scottish Office, London. The contending parties were both represented at the interview, and it was difficult for the plain man to get at the real facts of the case. Every statement made by one side was challenged by the other, and feeling ran high and strong on both sides. The Secretary for Scotland apparently is no believer in the policy of the Irish judge who refused to hear both sides of a case, "because," he said, "it is so confusing." But as matters eventuated he might as well have heard neither. He had already prejudged the

case, and read his verdict from a typewritten document. This new method of dispensing justice called forth several protests later in the House of Commons. Such a policy, indeed, reduces the receiving of deputations to the merest farce. The judgment of the Secretary for Scotland might be summed up as "Not guilty, but don't do it again." The proposed scheme was the best possible, but let the contending parties select two discreet representatives on each side to meet together and make it better.

THE report of the General Council of Edinburgh University contains a series of statistical tables showing the growth of the university in recent years. The number of students has increased from 2,780 in 1898 to 3,279 in 1910. This increase is accounted for by the greater numbers in the arts and science faculties. Medicine is stationary, and law and divinity show a serious decrease. The capital funds for last year show an increase of £34,118 over the previous best. The teaching staff, it is stated, has been augmented during the year by lectureships in Scottish history, banking, and clinical surgery, and by associate-ships in geology, moral philosophy, chemistry, and anatomy.

#### IRISH.

THE annual general meeting of the Catholic Headmasters' Association was held on October 25th, the chair being taken by the Very Rev. T. V. Nolan, S.J. It was unanimously resolved to request the Senate of the National University to add to the matriculation programme for 1912 a speech of Cicero as an alternative to Sallust's "Catiline," and Shakespeare's "Tempest" as an alternative to the prescribed portions of Cowper's "Task." The Intermediate Board was also requested to prescribe definite books in the senior grade pass programme in languages, and to make arithmetic a separate but not obligatory pass subject in every grade. Proposals put before the association in reference to a conference with the Intermediate Board concerning scholarships from primary to intermediate schools were approved.

THE annual meeting of the (Protestant) Schoolmasters' Association was held later, on November 4th. The secretary presented a report of the meeting of the Consultative Committee with the Intermediate Board in reference to the scholarship scheme, stating that the sum mentioned for that object was £10,000 per annum, to be provided by the Government, irrespective of the already admitted claims of intermediate schools. The association expressed approval of the principle of the scheme, there being no definite details as yet before it. The question of the position of assistant teachers in intermediate schools having been brought forward, a resolution was passed suggesting that there should in all cases be a written agreement between the headmaster and the assistant, which should secure the latter against summary dismissal except in special circumstances. A resolution was also passed approving the principle of the registration of teachers. A rearrangement of the senior grade honour course in geometry was suggested, so as to introduce into it some analytical geometry. The Intermediate Board was urged to restore the "principle of averages" in the case of pupils who failed to pass their examinations in one subject, but obtained in that subject between 25 and 30 per cent. A strong protest was passed against the arrangement whereby the new County Council university scholarships were in nearly every case limited to the National University, and it was urged that the holders should have freedom of choice as to the university which they would attend.

THE Classical Association of Ireland has held this autumn a series of lantern lectures on archæological subjects. On October 27th, Prof. G. Baldwin Brown, of Edinburgh University, lectured on "Town Planning among the Ancients"; on November 3rd, Dr. L. C. Purser and the Rt. Hon. Mr. Commissioner Bailey delivered a joint lecture on "Timgad, the Pompeii of North Africa"; and on November 17th, Mr. E. H. Alton lectured on "Etruria and the Etruscans." At the first of these lectures the association showed publicly the exhibits which it is prepared to send round on loan to schools belonging to it, consisting of lantern-slides, views, coins, casts, &c. On November 10th, at a meeting of the Trinity College Classical Society, to which members of the association were invited, Prof. J. I. Beare delivered an address on "The Sublime in Greek Poetry."

PROF. CULVERWELL is delivering this autumn a course of six public lectures in Trinity College on "The Principles of University Education." The first three lectures are being devoted to the question of mental discipline, i.e., whether the mind can be "trained" or "disciplined" by means of subjects which are studied not for their direct utility in after-life, but for their effects as mental gymnastic, and the last three are being devoted to the application to the university curriculum of the principles arrived at in the previous discussion.

THE "Hermione" lectures in Alexandra College were this year delivered by Prof. W. Ridgeway, of Cambridge, on "The Origin of Ornament." The titles of the four lectures were: "The Beginnings of Ornament and Primitive Jewellery," "Precious Stones and the Art of Engraving," "The Origin of Painting," and "The Origin of Sculpture."

THE Trinity College Calendar for 1911-12, issued this autumn, will be memorable for the King's Letters Patent, which are there given in full and cover twenty-nine pages. These letters reorganise the government of the college, and give it absolute freedom on the new lines to manage and control its own affairs. The new council and new members of the board have already been elected.

#### WELSH.

THE subjects chosen for theses in the University of Wales for the M.A. degree for the last examination were the following. In Greek: "A Comparison of the Treatment of Historical Subjects by Aristophanes and Thucydides." In Latin: "The Popular Element in the Language of Plautus." In English: "The Significance of Domestic Drama in English Literature, with special reference to Four Extant Elizabethan Domestic Tragedies, and with an Excursus on their Authorship"; "The Relation of Chaucer to Chivalry"; "The Attitude of Chaucer towards Chivalry, the Church, and the People, compared with that of Langland, Wycliffe, and Gower"; "English Ballads, their Origin and Literature"; "The Legend of Gawain: its Celtic Origins and its Treatment in English Literature"; and "The Seventeenth-century 'Character.'" In Welsh: "The English Element in Welsh"; "The Unpublished Poems of Lewis Glyn Cothi"; "Anglesey Place Names"; "Gweithiau Gruffudd ab Ieuan ap Llewelyn Fychan." In history: "An Examination of the Charges brought against the Friars by Matthew Paris"; "The Attitude of Wales towards the Reformation"; "The Castle and Town of Welshpool during the Twelfth and Thirteenth Centuries"; "The Boroughs of Radnor to the Act of Union, and Beyond"; "The Policy of Powys in the Twelfth and

Thirteenth Centuries." In philosophy: "The Conception of Teleology, with special reference to the Views of Spinoza, Leibnitz, and Kant." In education: "The Social Conception of Education in the Eighteenth and Nineteenth Centuries." In economics: "Industrial Combination"; "The Standard of Life and Comfort in South Africa and in England."

THE parents of children attending the Capel Curig Council School, under the Carnarvon Education Committee, have "revolted" against the action of the authority in appointing a headmistress in place of a headmaster for the school. The "revolt" has continued from September 19th onwards, but the authority has neither attempted to meet the parents nor issued summonses against them. It is stated that the only pupils left in the school are the two young children of the "boots" at a local hotel, and that the headmistress now gives up all her time to their instruction. Another parent sent his child for a time, but the "revolters" proceeded to "boycott" him, and he came into line. The leaders of the revolt are said to be astonished that the county authority does not take legal steps to enforce attendance at the school, and "are becoming somewhat restless" under the inactivity of the Education Committee.

THE Borough Controller of Merthyr has furnished statistics to the Corporation, showing the cost of elementary education in the borough for the year ended March 31st last as compared with other towns in South Wales and English county boroughs of about the same status. He states that the average rate for elementary education in the South Wales towns is 1s. 11d., the highest being Aberdare with 2s. 6½d., the lowest Llanelli with 11½d., whilst Merthyr stands at 1s. 8½d. The controller points out that, in comparing the rates levied for elementary education in the several towns, he has taken account not only of the cost of maintenance, but also of the rateable value of the town in which the rate is levied and of the comparative number of children in each.

If comparison is thus made of the assessable value per child in average attendance and the elementary education rate levied in the year, the following results are shown:

|         |     |     | Per head |       | Education rate |        |
|---------|-----|-----|----------|-------|----------------|--------|
|         |     |     | £        | s. d. | s. d.          | s. d.  |
| Barry   | ... | ... | 40       | 13    | 0              | 2 2    |
| Cardiff | ... | ... | 39       | 13    | 0              | 1 4.35 |
| Newport | ... | ... | 32       | 2     | 8              | 1 3    |
| Swansea | ... | ... | 26       | 7     | 1              | 1 0    |
| Merthyr | ... | ... | 20       | 11    | 7              | 1 8.2  |

It is pointed out that at Cardiff the total cost of maintenance is £3 13s. 3d. per child. This is 1s. 5d. more than in Merthyr, but Cardiff's elementary education rate is 1s. 4d. against Merthyr's 1s. 8½d. But a 1d. rate produces 3s. 2½d. per child in Cardiff and only 1s. 7½d. per child at Merthyr. It is argued that a redistribution of Government aid is necessary, so that the ratepayers of towns with a low assessable value per child shall not bear a heavier burden than those in richer towns—or else that the whole charges for education should be made national.

THE Newport Education Committee find that pupils are leaving the new higher elementary school before completing the three years' course. The committee has accordingly decided to draw up an agreement, to be signed by parents of children entering the school, undertaking that they will remain at the school for the full course. It was suggested, but the suggestion was not adopted, that weekly fees be charged, and that these be refunded at the completion of the course.

## DEM KLEINEN KINDE.

- (1) *The Children's Classics*. Ages 5-7, three parts, 2d. each; ages 6-9, three parts, 2½d. each; ages 8-10, three parts, 3d. each. (Macmillan.)
- (2) *Pitman's Supplementary Readers*. By F. A. Taprell. Six parts. 2d. each.
- (3) *Bell's Tiny Stories*. (Bell.) Four parts. 1d. each.
- (4) *Longmans' Continuous Story Readers*. Two parts. 2d. each.
- (5) *Little People in Far-off Lands*. By F. A. Taprell. (E. J. Arnold.) 2d. each.
- (6) *Bright Story Readers (Preparatory)*. (E. J. Arnold.) 1½d.
- (7) *Newnes's Playtime Series*. Four parts. 1d. each.
- (8) *Chambers's Narrative Readers*. In five sets. 2d. each booklet.
- (9) *Nisbet's Supplementary Readers*. Four parts. 3d. each.
- (10) *Nisbet's Supplementary Story Readers*. Two parts. 2d. each.
- (11) *Nisbet's Supplementary Reader, Rough the Terrier*. 4d. each.
- (12) *Every Child's Stories*. (E. Arnold.) Three parts. 4d. each.
- (13) *Chambers's Complete Tales for Infants*. Two parts. 1d. each.

In the museum at Copenhagen is a rune-written present for a teething child dating from heathen times, with the inscription "for the little child." To-day the little child is pretty well catered for: and a mass of books "dedicated at him," as the Portuguese book says, lies before us—rather belated. "Cinderella and Snowdrop," "The Field Mouse and the City Mouse," "Peter the Pedlar," "Child Charity and the Story of Heliotrope," "Reynard the Fox," "Pandora," and Canon Atkinson's "Scenes in Fairyland" (1), with many more tales, are the very groundwork for oral composition and story-telling on the little one's side; and for the very smallest the booklets from "Step to Step" (2), in words of two or three or four letters do the same office. "Kind Ben" and "The Twins' Picnic" (3), with two others, belong to the same class; their shape is good, and the illustrations in "The Clever Cat" and "Little One Eye" (4) are admirable. Mr. E. J. Arnold sends two of the very large series edited by A. Gardiner; one deals with children in foreign lands (5). Newnes's Playtime Series (6) takes us back many years, for, lo! we have revived "Screaming Annie":

"Now listen, children, while I tell  
What naughty Annie once befell,  
Who always used to cry and rave  
So oft as Ma the house would leave."

We wonder if the teacher will like it (the children will), and if anyone will realise the age of the verse by the syntax and the rhyme. Shades of the Taylors, arise and smile. The companion books of "Screaming Annie" are more ordinary. "Snow White and Rose Red" and the immortal "Hans" follow (7), and "Walter's Wonderful Ride," "Mrs. Newt's Adventures," "Rob and the Sea Farrier," "The Woodcutter and the Fairies" (8); "Betty and the Little Folk" and "The Pets' Picnic"; and "Rough the Terrier" (11), founded on fact. "Alice in Wonderland," "The Water Babies," and "Rollo" (12) belong to every child—a sort of junior Everyman; and "Soldier John" (13) and "A Doggy Diary" are illustrated from photographs.

Numberless are these publications; but the readers are numberless. The value of the books depends mainly on the

teacher and the method; and why should not the booklets, for they are nothing more, go in their dozens into the little ones' libraries? But have the little ones school libraries? What would the Elizabethan schools, which had to prevent children of five from appearing at the door, have said to such a wealth of story?

### FOOTBALL.

*The Book of Football.* By E. H. D. Sewell. xiv+304 pp. Illustrated with diagrams and photographs. (Dent.) 5s. net.

THIS book is devoted to both the Rugby and Association games of football. The author adds an interesting account of Rugby and Association tours abroad, followed by an article on "The Press and the Game." The volume also contains a numbers of portraits of well-known players.

The work is mainly intended for young players, and is an earnest endeavour to impress upon schoolboys the importance of *playing the game for the sake of the game*. It is refreshing to find great stress laid upon the undesirability of adopting tactics which are opposed to the true spirit of sport, merely in order to keep an unbroken record. Moreover, the author has a graphic style, and writes in a way which will be easily understood by those for whom the book is intended.

The advice offered to players as to the manner in which their work should be carried out in their various positions in the field is quite sound, and shows an intimate knowledge of the game. This being so, it is a pity that Mr. Sewell's evident partiality for the Rugby code should lead him to belittle Association football, as he seems to do, on pp. 141 and 142, by saying:

"For myself, I have never seen where some of the much-talked-of science in Association football comes in. If plainness and obviousness are part and parcel of science, then the work of the tip-top players is scientific; but I have never seen a first-class soccer match in which, generally speaking, it was not perfectly obvious what the man with the ball was trying to do some little time before he did it, or failed in the attempt to do it."

This is surprising, because later (p. 148) the author, in writing upon dribbling, says:

"Obviously this can only be done by making the opponent think that the dribbler is about to do something that he is not about to do, and to so 'time' what he is really trying to do, as to do it just at the moment when his opponent has made up his mind he is going to do that which he never meant to do. In other words, the forward, of all men on a field of soccer, must be something of a thought-reader."

Again, on p. 164 we read:

"The greatest centre-forwards are so very clever at concealing their intentions of where they are going to pass the ball, that even the most experienced backs cannot always divine them. The clever centre unmasks his battery only at the right time."

If this is true, how is it that in the many first-class matches witnessed by Mr. Sewell these necessary qualifications were apparently absent?

*A Text-book of Geography.* By G. Cecil Fry. xxi+468 pp. Second edition. (Clive.) 4s. 6d.—The first edition of this book was reviewed in our issue for December, 1908 (vol. x., p. 473). More than thirty new maps and diagrams, including fifteen coloured maps, have been added; and climatic data for the principal divisions of the world have been inserted. The inclusion of 350 examination questions will prove of service to teachers.

### THE RELIGIOUS QUESTION IN SCHOOLS.

*The Religious Question in Public Education: a Critical Examination of Schemes Representing Various Points of View.* By Athelstan Riley, Prof. M. E. Sadler, and Cyril Jackson. (Longmans.) 6s. net.

THIS book certainly appears at an opportune moment. The Act of 1902 confessedly left the "religious question" in a still unsettled condition, and subsequent attempts at settlement have met with no success. For the moment, owing to the political situation, the public mind is comparatively at peace so far as this problem is concerned. But only for the moment. The storm will inevitably break out anew. Meanwhile, it is the duty of a wise man, especially if he be in a position to guide the educational and religious opinions of the many, to survey the position from all sides and try to find that solution of the difficulty which has the best chance of general acceptance. The editors of the present volume have, we believe, done excellent service in placing before the public a convenient compendium of various schemes and in offering a series of comments upon those schemes. The fact that the three editors, all of whom have given much attention to the question, themselves approach it from different points of view, is a sufficient guarantee that their joint comments are as impartial as the case admits of.

There is one point of view, however, to which justice is surely not done in this otherwise comprehensive volume—we mean that of the teacher as such. Of course we admit that upon educational questions of a broad national character the teacher has hardly any more right to be heard than other people. But we claim that in all that concerns the practicability of a scheme, its likelihood of working well in the day-to-day business of school keeping, statesmen will be unwise if they neglect the opinion of the teacher. Tried by the test of practicability—and it is only in this sense that we here discuss the subject—we believe that some of the schemes here set forth are justly open to severer criticism than the editors have dealt out.

The "Hope-Eden Draft Bill," for example, would require the parents of every child admitted to a public elementary school to state whether he desires the child to receive religious instruction in accordance with the principles of the Church of England, or the Nonconformist Churches, or the Roman Catholic Church, or the Jewish Church, and would require the local authority to provide a teaching staff suitable for the purpose of giving this instruction. We say nothing of the keen regret which the vast majority of teachers would surely feel at having to classify their scholars at certain periods on a denominational basis. But we must point out (i) that the teachers as a body would certainly resent the imposition of "credal tests"; (ii) that hopeless confusion would be introduced into the appointment of teachers; (iii) that in a school of small or moderate size pupils of all ages would have to be taught together; and (iv) that a vast number of parents, especially in the slum areas of our great towns, belong to no Church at all. The fact that the authors of this Bill should suppose that all cases, except an almost negligible minority, could easily be fitted into their pretty little four-compartment scheme shows that they have by no means grasped the problem as the working teacher sees it. The editors are, we think, far too lenient in their criticisms of certain aspects of this scheme.

Considerations of space prevent us from offering detailed comments upon all these schemes. We can select only a few for very brief remark. A Bill based on the principle that the ratepayer should allocate the rate he pays to provided or non-provided schools is clearly shown to be hope-

lessly unworkable. Upon Mr. H. Egerton's scheme for the election of parents' committees, and the entrusting to them of large rights of consultation and of appeal, we need only quote the author's own remark that "unfortunately most parents are ignorant and indifferent." The Bill drawn out by some "Liberal Members" adopts the short and easy course of ignoring religious instruction, and is therefore practically useless. The "Educational Settlement Committee's Scheme" has already been reviewed in these columns.<sup>1</sup> The scheme of "Sine Nomine" provides large facilities for denominational teaching; it does not require, but permits, the regular teachers to give this instruction; but it naively provides that "discipline during religious instruction" is to be maintained by the school staff!<sup>1</sup> "Sine Nomine," indeed, lets the cat out of the bag. The Roman Catholic case is presented with vigour and with faultless logic, provided certain premises are granted.

As we close the book we feel that the real issue is involved in the belief expressed by one of the editors—it is easy to guess which—"that undenominational teaching given with sincerity and reverence becomes the expression of the underlying unity of all real religious experience, and that in schools attended by children belonging to many different faiths it is the right means of fostering a religious attitude of mind, which is one necessary factor in a liberal and character-forming education." That is the *crux* of the situation. Is undenominational teaching to be recognised as answering to a deep need of our common humanity, to be supplemented in the churches and Sunday schools by something more definite? Or is it to be disparaged by some such epithet as "residual Christianity," with the implication that it consists of a sort of sediment remaining behind when the good wine of dogma has all been drawn off? Readers of THE SCHOOL WORLD cannot afford to ignore this issue, because what is done in State-provided elementary schools will in all probability, and in all fairness, be ultimately done in State-provided secondary schools as well.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

C. F. Meyer, *Jürg Jenatsch*. Adapted and edited by W. Ahrens. xix+210 pp. (Macmillan.) 2s. 6d.—A very nice edition of an excellent text. The introduction gives a good account of the author and of his hero. The text has been judiciously abridged and carefully printed; there are adequate notes, and appendices by Mr. Siepmann, the general editor. Little in the notes calls for comment: is it correct to describe *Jürg* as a "diminutive" of *Georg*? *Eben* may very well be the equivalent of the adverb as well as of the adjective *even* (note to p. 7, l. 28). The omission of the auxiliaries *haben* and *sein* at the end of dependent clauses is not faulty (note to p. 14, l. 21). In the note to p. 20, l. 11, a reference to *Mitternacht* would have been instructive. Is there any justification for assuming a middle Latin form *tenents*? In the note to p. 68, l. 11, the word *Schriftführer* might have been given. In the note to p. 86, l. 5, *April* is given as the old native name of the month; it should be *Ostermonat*.

E. T. A. Hoffmann, *Der Kampf der Sänger*. Edited by F. W. M. Draper. 48 pp. (Blackie.) 6d.—This forms an interesting addition to the publishers' Little German Classics. The editor has done his work very

creditably. The text is well printed on the whole; but *mit einander* (p. 5, l. 21) should not be printed as two words, *erwiederte* (p. 7, l. 18, and p. 21, l. 10) should be *erwiderte*, and *Gefanges* (p. 13, l. 15) should be *Gesanges*. The notes are generally adequate. It would have been well to give the correct form of "Wolframb von Eschinbach," and to add notes on *Singschulen* (p. 29, l. 23) and *im guldnen Ton* (p. 30, l. 2). The rule for the tense in indirect speech on p. 42 is not satisfactory. The rendering of *hatten sie . . . besungen* (p. 7, l. 26) is incorrect. In the note on p. 16, l. 28, *fit* should be in italics, not *faire*.

E. Frommel, *Mit Ränzel und Wanderstab*. Edited by Dr. W. Bernhardt. ix+144 pp. (Heath.) 1s. 6d.—A pleasant text that tells of the wanderings of some boys in the Black Forest, with a few suitable illustrations, including a good portrait of the author. Dr. Bernhardt has edited many German texts, and here, as generally, he does his work well, but with just a suspicion of pedantry, as when he uses such terms as *synecdoche*, *apocope*, *chiasm*. There are also some expressions reminding us that the book is of American origin: *Baden-Baden* is the "Saratoga of Germany," and we hear of "dime-novels." The translations of certain German poems in the notes are distressing; what would Chamisso have thought of this representation of lines from his "Schloss Boncourt":

"How haunt you my brain, O visions,  
Methought ye forgotten and dead."

H. Sudermann, *Heimat*. Edited by F. G. C. Schmidt. xi+129 pp. (Heath.) 1s. 6d.—The play well known as "Magda" is here issued "with a very few verbal omissions"; it is obviously quite unsuitable for school use. Older students may find this edition useful. The introduction contains some account of the author, and the notes clear up difficulties. Some of the notes are unnecessary ("Milan, a city in northern Italy"); others suggest quaint pronunciations of French words; e.g., "*tiens*, pron. *tie*," "*engagement*, pron. *angazhman*"; and one gives as the rendering of "*ein Kerl!*" *considerable of a fellow*.

### Classics.

*Ante Limen: a New Latin Book for Young Beginners*, based upon *Limen*. Compiled under the guidance of Profs. Walters and Conway by R. H. Rees. 128 pp. (Murray.) 1s. 6d.—The chief difference between this book and "*Limen*" is that it contains less: it is written on the same plan. We cannot altogether approve the plan. Opinions differ as to the proper age to begin Latin: our opinion is that it should not be so early as this book seems to imply. But apart from that, the book tries to embody two methods which are incompatible: one is the direct method; the other, the method of learning from books. The direct method works from within, and uses at first the two childish instincts of acting and naming; the other has formal grammar in view, and may be quite independent of these instincts. Now the first exercise appears to address the child: "*Intra, ne time; intrate, ne timete. Tace et ausculta . . . festina, ne sta . . . Pugnat et superate . . .*" Who says these, and to whom? Is the class outside, and does it come in at the call? Do they really fight? Obviously the answer is no; the words are not meant to have any reference to acts; they will be learnt from the book, and they must therefore be all translated in words: they might as well be *filia pulchra deam amat*. So with the second, where we learn that "*Agricola vere arat*"—he does it in the autumn, too; so much for truth to nature: "*Nauta navigat*," and so forth. Questions are added to be answered in Latin: so far,

<sup>1</sup> See THE SCHOOL WORLD for August, 1911, p. 304.

good; but this is only a small part of the method which the book seems at first sight to favour. So far as the direct method is concerned, the book is misleading, and almost useless. If we criticise it from the other point of view, we find quite a number of exercises that are simple, and not uninteresting; it is better than Smith's "Principia Latina," or other books of the same sort, just so far as it is simple and not uninteresting. But it is incoherent; there is no connection between the exercises, as there might be, and a number of them, like the first, are puzzling. The accidence included is the first four declensions, adjectives, common pronouns, and all four conjugations in the active imperative, infinitive, supines, and indicative present, imperfect, future, perfect, pluperfect, and future perfect, with the verb "to be"; and the present subjunctive active. There are also vocabularies and exercises on the text.

*A Short History of the Roman Republic.* By W. E. Heitland. viii+528 pp. (Cambridge University Press.) 6s. net.—Mr. Heitland's larger history has received the approval of scholars: the present book is rewritten in shorter form for less advanced students. It is a true maxim that the best way to write a small book is first to write a large one; and the reader of this short history will admit that Mr. Heitland has provided another example. It is an eminently readable book, not only for its direct and lively style, and its irony, but for the mastery it shows of all this complicated story. But it must not be supposed that this is an elementary book. It is a short history; but it is better suited for mature readers than for children. The Royal Period, with all its good stories, its humanity, its romance, if you will, is dismissed in six pages. We are not wrong, perhaps, in supposing that Mr. Heitland cares little for such things. On the other hand, the constitutional part, law and statecraft, are treated with fulness. The spirit of the book is large: we see the nation moving, and details are secondary. There are very few footnotes or references, and no chronological table: but the index is admirable, full and carefully arranged. Six plates of coins (sixteen coins in all) illustrate the text. If we cannot think that the book is all that a schoolboy wants, it is, at least, one that the most thoughtful schoolboys can read with real profit after they have learnt the outlines.

### English.

*English Grammar and Composition.* By G. A. Twyman. Part I. First Year Course. 115 pp. 1s. Part II. Second Year Course. 131 pp. 1s. 6d. (Rivingtons.)—We have here the first two parts of a well-considered scheme for teaching the art of composition; for the author's aim is not so much to teach the science of grammar as to provide material for the foundation of a satisfactory prose style. He therefore, very rightly in our opinion, takes his illustrative examples and matter of the exercises from prose authors. By quoting continuous passages he succeeds in creating from the very beginning a literary atmosphere, and by reducing, so far as possible, the use of grammatical terms in the first year he gives his readers an insight into the functions of the parts of a sentence without insisting upon exhaustive definitions. We are glad to see, too, that he insists upon the need for oral work. No essential of language work is omitted, and yet the main aim of the books—the teaching of composition—is always kept clearly in view. It is a sound instinct which leads the author to base composition upon the paragraph and not upon the sentence. We heartily recommend the books as a systematic training in English prose.

*English Literature from Beowulf to Bernard Shaw.* By F. Sefton Delmer. Second edition. 232 pp. (Berlin: Weidmannsche Buchhandlung.) 2.60 m.—Prof. Delmer's manual is more readable and better arranged than most of the type. There is nothing which makes it unsuitable for English-speaking students, even although some phonetic assistance is given which will make it specially convenient for others. The inclusion of still living authors and of colonial and American writers is all to the good. Seeing that the book is at the most a companion, and not a substitute, for the literature to which it refers, we rather wonder whether it was worth while to add an appendix giving analyses of some few masterpieces. Let us hope that no misguided examinee will study the analyses and forget to read the works themselves.

*Junior Dictation from Famous Authors.* By Rankin Wenlock. 87 pp. (Macmillan.) 1s.—This is an excellent book for teaching spelling and punctuation. The author is a believer in prepared dictation, and has chosen his extracts from the best examples of children's literature. He has the courage, too, to draw up lists of difficult words to be learnt by heart, to give a list of many such words with their meanings, and to provide several blank pages for words which have given the particular owner of the book special trouble. Altogether a sound, sensible piece of work.

*Simplified English Dictionary.* 144 pp. (Nisbet.) 4d.—A truly wonderful fourpenceworth; good paper, surprisingly good type, and a sufficient range of vocabulary for all ordinary uses—not to mention several appendices on prefixes, suffixes, foreign phrases, mythology, and other equally interesting and valuable matters. The meanings given we find quite satisfactory; the only exception we are inclined to make is in the case of *absolution*; does it really mean "freedom from punishment"?

*Easy Parsing and Analysis.* By J. C. Nesfield. 112 pp. (Macmillan.) 1s.—Those who prepare preliminary candidates for Local examinations will welcome this little book. It is chiefly taken up with definitions and examples of the parts of speech, and its chief merit lies in the simple language employed and in the copious illustrations. It is a pity that the pagination of the table of contents is all wrong.

(1) *Stead's Prose Classics for Children: Water Babies, Robinson Crusoe, Picture Shakespeare, Don Quixote, Alice in Wonderland.* (Stead's Publishing House.) 3d. each.

(2) *Chambers's Supplementary Readers: Hermy.* By Mrs. Molesworth. 160 pp. 8d.

(3) *Longmans' Continuous Story Readers: Hans Andersen, Faerie Queene,* 4d. each; *Tales of the Homeland. Tales from Grimm,* 6d. each; *A Book of Heroes, Two Heroines,* 8d.

(4) *Tales of Old Romance, Faerie Queene, Siegfried, Balder the Beautiful.* Stories from Chaucer. (E. Arnold.) 4d. each.

(5) *Gulliver's Travels.* 126 pp. (Blackie.) 9d.

(6) *Lamb's Tales from Shakespeare.* Books I. and II. 128 pp. (Harrap.) 6d. each.

(7) *Hero Folk of Ancient Britain.* Edited by S. E. Wiltse. 125 pp. (Ginn.) 2s.

(8) *Southey's Life of Nelson.* Grade V. or VI. Bright Story Readers. (E. Arnold.) 4d.

(9) *The Children's Classics.* Intermediate: *Legends of the North,* 3½d.; *True Tales by Sir W. Baker,* 3½d. Senior: *Tales from Dickens,* 4d.; *Tom Browne's School Days,* 4d. (Macmillan.)

(10) *Nisbet's Supplementary Readers: Legends of the Rhine.* By E. Purdie. 104 pp. 6d.



(11) *The World in School*. Book I. By M. Cameron. 140 pp. (Nisbet.) 10d.

Mr. Stead's work, though many imitators and successors have arisen, shows no sign of coming to an end; but this series is more ambitious than the famous penny set. No reprint calls for special mention; they are all illustrated.

Mrs. Molesworth needs no advertisement, and the familiar names in the books of tales show that the old stories do not pall. "Gulliver" and Lamb are reprinted once more; and a curiously illustrated hero book, somewhat misnamed, is as old as they.

Southey's "Life of Nelson" is of a convenient size, and the "Children's Classics" are well graded.

The "Legends of the Rhine" wanted doing, and is new; and "The World in School" introduces children to their brothers in other lands.

### History.

*Philips' New Historical Atlas for Students*. By R. Muir. 62 pp.+65 plates+31 pp. (Philip.) 9s. net.—Prof. Muir here provides the student with a complete historical atlas containing 154 coloured maps and diagrams, with an introduction illustrated by forty-three other maps and plans in black and white, and furnished with a good index. The range of date is from 395 to the present day, his maps of the Arctic and Antarctic regions marking the achievements of Peary and Shackleton. We could dwell long on the excellences of this book, but limits of space prevent us from doing more than mention the interesting series that illustrate the growth of sixteenth-century ideas on the position of America. We suppose there must be good reason for the omission, so far as we can find, of Sven Hedin's name, and for the unfortunate fact that the boundaries of States other than the Holy Roman Empire are also marked in red, though not so broadly as those of the Empire. It is apt to lead astray the ignorant and unwary. The atlas should be in all libraries, whether of the school or of history teachers.

*Mediaeval Europe*. By H. W. C. Davis. 256 pp. (Williams and Norgate.) 1s.

*Mediaeval Europe, 1095-1254*. By K. Bell. 469 pp. (Clarendon Press.) 4s. 6d.

Of these two books, Mr. Davis's is evidently intended for the general reader, Mr. Bell's for the student. Yet we found Mr. Bell's the easier reading. Mr. Davis begins with the causes of the fall of the Roman Empire in the West, and at least refers to events as late as 1270, the whole period being compressed into 256 pages. Such a length of period, and a period crowded with events of a nature unfamiliar to the modern mind, has compelled him to choose between telling the story and giving the explanation. He has chosen the latter, and it will be well, therefore, to say that his book presupposes a certain acquaintance with the subject. The patron of the Home University Library of Modern Knowledge, of which series this is a volume, will be as much puzzled by Mr. Davis's opening chapter, with its allusions, as the uninformed reader by the beginning of Dr. Bryce's famous "essay" on the Holy Roman Empire. Nor will he be consoled later, as Dr. Bryce's readers are, by finding that the inauguration is merely a prelude, which is explained as the story develops. In fact, the thousand years which are the subject of this little volume are too big for the treatment. "You cannot get a quart into a pint pot." Mr. Bell begins, too, with explanations, but he follows with a story, and that of less than two hundred years. It is no detriment to Mr. Davis personally to say that the general reader will learn something from Mr. Bell, whereas he

will but be bewildered with the unexplained generalisations of the smaller book. Mr. Davis gives us a bibliography, a few poor maps, but no index. Mr. Bell gives us no bibliography, but some clear maps, various tables, and an index.

*Lyra Historica, Poems of British History*. Selected by M. E. Windsor and J. Turrill. Part I., 64 pp. (8d.); Part II., 64 pp. (8d.); Part III., 96 pp. (1s.); or the three parts bound in one, 2s. (Clarendon Press.)—An excellent selection of poems illustrating British history from 61 to 1910, some by Shakespeare and Walter Scott, but mostly by modern writers, with notes at the end of each poem, and explanations of single words at the foot of the page. Some of the notes seem rather elementary, at any rate for readers who are expected to "see Froude's 'Destruction of the Armada in Ireland, 1588,' p. 71 of the *History*," but the book is one which we can heartily recommend. The divisions of the parts are at 1381 and 1641.

*English History in English Poetry*. By C. H. Firth. lxi+240 pp. (Horace Marshall.) 2s. 6d.—Prof. Firth thinks modern history should be taught in schools, at any rate as far down as 1880, and his preface gives the reasons for this belief. It also contains a most interesting account of the extracts which follow, and of the events which inspired them. These extracts are from the period beginning with the French Revolution and extending nearly to 1870. Space does not permit us to give any account of them, but they are all worth reading and studying. Miss C. L. Thomson, who aided Prof. Firth in his selection, writes brief notes on the poems at the end of the book.

*Famous Voyages of the Great Discoverers*. By E. Wood. 270 pp. (Harrap.) 1s. 6d.—Mr. Wood "retells," to quote his preface, "in simple and direct style the stories of those early explorers whose deeds have won them an abiding place on the roll of fame," and we have accordingly in this book the romance of fifteenth- and sixteenth-century exploration, both east and west. There are maps and pictorial illustrations, some of these being by Mr. S. Reid, and seven copies of famous pictures. An admirable book for the school library. There is an index.

*The Story of Napoleon*. By H. F. B. Wheeler. 319 pp. (Toronto: McClelland and Goodchild.) 1s. 6d.—Napoleon's life is here sketched with much anecdotal matter, dwelling mainly on the military and international side. There are eight reproductions of well-known pictures, two sketch maps, and an index. A good book to put into the hands of a boy.

*The Storied Past*. vii+248 pp. (Edward Arnold.) 1s. 6d.—This book is all quotations. It is "a book of selections from English literature illustrative of English history" taken from all kinds of authors from the "Anglo-Saxon Chronicle" to modern novelists. Its subjects range from "Boadicea" to "the future" as pictured by Tennyson, and there is not a word of comment or criticism. That is our only complaint, for the selections and the pictorial illustrations are good.

*The Ground Plan of the English Parish Church*. By A. H. Thompson. xii+138 pp. (Cambridge University Press.) 1s. net.—This is a monograph on a technical subject which, the author says, has not been treated in a book entirely devoted to it. There are sixteen illustrations, some of them plans, some views of churches, and the history of the development is traced from early days, apparently, until the time of the Reformation. To those interested in

church architecture the book should be useful, as the literature which bears on the subject is not very accessible to the ordinary student.

### Mathematics.

*Higher Mathematics for Chemical Students.* By J. R. Partington. iv+272 pp. (Methuen.) 5s.—The increasing importance of the physical aspects of chemistry renders it necessary for every student to possess some knowledge of the differential and integral calculus. In this work the author has strictly confined himself to a discussion of those operations and functions which find a place in the mathematical treatment of chemical statics and dynamics. It appears that chemists make use of simple algebraic, exponential, and logarithmic functions, but never need the trigonometric functions, a fact which indicates that all chemical changes involve much friction. Still, it is possible to understand the principles of the calculus without knowing anything about sines and cosines; and on the purely mathematical side the book is quite sound and may be used with confidence.

*A New School Geometry.* Part I. By R. Deakin. xvi+160 pp. (Mills and Boon.) 1s.—Mr. Deakin has considerable experience of modern methods of teaching elementary geometry, and finds that in many schools there is often failure to maintain a fair balance between the practical and theoretical work in the subject. In writing this "Geometry" he has provided abundant material for work of both descriptions; but he urges that, except with very young pupils, only so much practical work should be taken as will serve to ensure a thorough comprehension of the meaning of geometrical terms, combined with a fair amount of skill in drawing. Much oral work with the drawing of rough figures in class is recommended. This first part deals with the congruence of rectilinear figures and some of the elementary properties of solids. The exercises are numerous; many require measured constructions, while there is a good supply of riders, together with a series of very useful hints on the methods which ought to be adopted in solving them.

*Second Course in Algebra.* By H. S. Hawkes, W. A. Luby, and F. C. Touton. viii+264 pp. (Ginn.) 3s. 6d.—It appears to be customary in many American schools to devote successive school years to algebra and geometry alternately. This may possess some advantages over the English method of carrying on the study of both simultaneously, but it has the obvious defect of allowing much of the first course of algebra to be forgotten during the following year of geometry. The preliminary chapters of this second course are therefore devoted to a revision of the earlier one. The remainder of the course covers quadratic equations, indices, progressions, and the elementary theory of logarithms and the binomial theorem. Nearly all the examples are of a straightforward character, and they appear, on the whole, to be less difficult than those in corresponding English books. Portraits of Leibnitz, Klein, Napier, and some historical and biographical notes help to make the subject interesting.

*Elementary Trigonometry.* By F. T. Swanwick. xvi+243 pp. (Cambridge University Press.) 4s.—The arrangement of the subject-matter is distinctly novel, and the writer acknowledges his indebtedness to Prof. Lamb for suggesting the method adopted. The book is divided into three parts. Part I. contains a purely arithmetical treatment, and leads up to a method of solving triangles by reduction to right-angled triangles. In this part the trigonometrical functions are defined for acute angles only. In Part II. the definitions are extended to meet the case

of obtuse angles, and proofs given of the addition formulæ based upon the relation between the angles of a triangle. At this point circular measure is introduced, and the usual formulæ for the solution of triangles are obtained. These two parts contain all the trigonometry required by ordinary students. Part III. contains a more complete discussion of several of the earlier topics. Definitions of the functions for angles of any magnitude are given, and inverse functions, triangles, quadrilaterals, and the related circles are discussed. The examples are not very numerous, but are carefully selected. The plan of the book has much to recommend it, and its adoption would render it possible for a larger number of pupils in our schools to gain some acquaintance with trigonometry.

*Analytical Mechanics.* By E. H. Barton. xx+535 pp. (Longmans.) 10s. 6d. net. This is a fairly comprehensive treatise on those parts of the kinetics and statics of solids and fluids which can be treated without the use of advanced analytical machinery. The book is divided into six parts, of which the first is merely introductory. The others deal respectively with kinematics, kinetics of particles and rigid bodies, statics including attractions, hydromechanics, and elasticity. The great merit of the book from the point of view of the student preparing for examinations is that, instead of having to consult separate treatises, everything he is likely to need is to be found in this one volume; and it must be said that, so far as the text is concerned, the book is much superior to the generality of those written with an eye to the requirements of examining bodies. We consider the author to have been specially successful in dealing with linkages and making clear the difficulties which beset the mathematical treatment of the rotation of rigid bodies. The chief defect is that practically all the examples have been taken from examination papers, and consequently are artificial and fail to a great extent to impress the student with a sense of the possibilities of the subject. The discussion of a greater number of real problems would greatly enhance the value of what in other respects is a very useful book.

*A Treatise on Dynamics.* By Prof. A. Gray and J. G. Gray. xvi+626 pp. (Macmillan.) 10s. net.—This work treats of the dynamics of a particle, the dynamics of rigid bodies, and concludes with a brief chapter on statics. As is to be expected, the book is animated by the spirit of Thomson and Tait; and readers who are acquainted with the "Natural Philosophy" and "Dynamics of a Particle" will find in this latest product of the physics department of Glasgow University much with which they are familiar. It will be remembered that in the "Natural Philosophy" stress is laid not so much upon the mathematical formulation of dynamical principles and the transformation of the resulting equations as upon the application of the principles to interesting and important problems. It is the same in the book before us. Students of astronomy, physics, and engineering will each find very thorough discussions of some of the most fundamental dynamical problems which occur in their several branches of work. The whole of one chapter is devoted to illustrations of dynamical principles drawn, so far as possible, from practical affairs, such as mechanical traction, workshop appliances, and similar matters, while the chapter on tops contains examples of gyrostatic action in machinery. The discussion of the rotational problems has been considerably simplified by the method adopted for calculating rates of change of vector quantities in a moving system. The chapter on general dynamical systems provides a short though adequate introduction to the more general methods

of dealing with dynamical problems. The chapter on statics deals only with a few cases of flexible chains and the reduction of a system of forces, and bears little relation to the rest of the book. However, apart from this, the work is excellent, and should inspire even the dullest student with enthusiasm for the subject.

### Science and Technology.

*Wild Flowers as they Grow.* Photographed in colour by H. Essenhigh Corke. With descriptive text by G. Clark Nuttall. Second series. vii+197 pp. (Cassell.) 5s. net.—A few months ago (April, 1911) we noticed the first volume of this work, and pointed out the unique character of the illustrations. The present volume is just as attractive. There are twenty-five plates representing common flowering plants reproduced from photographs in colour taken direct from nature. Though it is as yet impossible for any method of mechanical reproduction to give absolutely true colour values in all cases, the pictures in this volume are as near perfection as photographic process can make them. In subjects like the wood sorrel, water crow-foot, and snowdrop the blue tinge which generally asserts itself in colour photography is perhaps too prominent, but we can overlook this on account of the faithful tints of the other pictures. The text is just what should accompany these beautiful plates, being interesting and mildly instructive. The book will give pleasure to everyone whose soul is not dead to the beauties of nature.

*Plant Life on Land.* By F. O. Bower. vi+172 pp. (Cambridge University Press.) 1s. net.—“To illustrate along various lines of thought, each suggested by common features of the country, the outlook of modern botany” is the aim of Prof. Bower's book. Thus the plant associations of the beach and rocks suggest inquiries into the origin of the land flora, a subject on which Prof. Bower is perhaps the greatest authority. Following this are chapters on the fern alliance, the flower and its work, and analyses of the relations between various typical environments (e.g., sand dunes and golf links) and structure, all treated with characteristic lucidity and originality. One of the most suggestive chapters is that considering “Fixity of Position as a Factor in the Evolution of Plants.” The book is one which no student of botany can afford to miss. It contains several excellent illustrations.

*The Coming of Evolution.* By John W. Judd. viii+171 pp. (Cambridge University Press.) 1s. net.—In this little book, the first volume of the admirable series of “The Cambridge Manuals of Science and Literature,” the story is told of the development of the evolutionary theory, and particularly of the part which Scrope, Lyell, Darwin, and Wallace played in its establishment. The essentials of the theory are explained clearly, and “educated readers in general” (for whom the series is intended) will profit by the well-balanced account of its main aspects in geology and biology. Prof. Judd's personal reminiscences of the protagonists in “the greatest revolution in thought which has occurred in modern times” add in no small degree to the interest of the book.

*The Open Book of Nature.* By Charles A. Hall. xi+268 pp. (Black.) 3s. 6d. net.—This “Introduction to Nature Study” is a very pleasant volume, and would make a capital prize for any young naturalist. The author has a genial and discursive style, which a healthy-minded boy will appreciate; and the pictures—both photographs and coloured plates—are excellent. Nearly half the book is on open-air geology; the rest deals with plants and animals. We are told (p. 96) that “Nature has always worked from

the lowest to the highest,” and (p. 110) that “you can do good service by scattering seeds of rare plants in places where they are likely to grow and do no harm”; again, on p. 120, onion bulbs and potato tubers are described as roots. From which it may be gathered that the author is no pedant.

*A Scheme of Nature Study.* By G. G. Lewis. viii+80 pp. (Pitman.) 1s. 6d. net.—Many teachers will be helped and encouraged by this account of the author's experience in organising the nature-study of “a small but crowded ‘temporary’ L.C.C. school.” The conditions and opportunities of such work vary enormously in different schools, but the underlying ideals remain the same. Mr. Lewis expounds them clearly and illustrates them practically.

*Treherne's Nature Series.* No. I., Butterflies and Moths; No. II., Animals, Wild and Tame; No. IV., Minerals. By W. F. Kirby. (Treherne.) 8d. net each.—Each of these little books contains 48 pages of coloured illustrations and descriptive notes. The colouring is crude, but the books will be useful for reference.

*Astronomy.* (Home University Library.) By A. R. Hinks. 256 pp. (Williams and Norgate.) 1s. net.—There are many books on astronomy for general readers, but the volume before us is distinguished from them by several noteworthy characteristics. It is original in thought, eclectic in substance, and critical in treatment. Methods and results are weighed in the balance of the author's mind, and the evidence for conclusions is summed up with fairness and knowledge. Only an astronomer in the living stream of celestial studies could write such a book; for no one else is capable of appraising observations and hypotheses at their proper value. For the reader who desires to be placed *en rapport* with astronomical fact and thought, so far as that is possible without technical knowledge, no better little book than this is available.

*Elementary Applied Mechanics.* By Prof. A. Morley and W. Inchley. viii+382 pp. (Longmans.) 3s. net.—In preparing this book the authors have borne in mind the limited mathematical attainments of beginners, and have made considerable use of simple graphical calculations. Many numerical examples are also given, some worked out and others to provide material for the students' own efforts. The book also contains descriptions of simple laboratory experiments. The ground covered is that indicated by the now extinct Board of Education Stage I. of the subject. In the matter of arrangement the book follows well-known lines. Elementary statical principles are treated first, leading up to simple structures, and followed by chapters on work, friction, and simple machines. As might be expected from Prof. Morley's work on the strength of materials, the portions of the book dealing with this part of the subject are clear and good. These are followed by chapters on motion and on hydraulics. There are a few minor blemishes. Thus on p. 138 a train of wheels is illustrated in which the shaft of one of the wheels passes through the rim of one of the other wheels. The design of the Prony brake shown on p. 115 could be improved somewhat. The book is well and clearly illustrated, and will no doubt find favour with many teachers and students of mechanics.

### Miscellaneous.

*Educational Charters and Documents, A.D. 598 to 1900.* By Arthur F. Leach. 582 pp. (Cambridge University Press.) 10s. net.—We hail the publication of this work with great satisfaction. Mr. Leach announces as his aim

the desire to accomplish "for the educational history of England what Bishop Stubbs did for its constitutional history." Mr. Leach has already furnished himself with a great part of the materials for this work by his most valuable contributions to the "Victoria County Histories," and by his research work embodied in the volumes on the early Yorkshire schools, on Southwell and Beverley, and on Warwick School, not to mention his numerous articles in reviews and other journals on individual schools and matters of importance in educational history. From his rich stores of documents already edited, constituting a certain *embarras de richesses*, his main difficulty probably has been to confine his choice of significant documents within the prescribed limits. As it is, Mr. Leach excludes documents in illustration of the development of elementary education, technical schools and colleges, and the organisation of the education of girls and women. But since his plan is a strictly chronological one, it seems a pity that illustrations of these educational aspects should not have been included in the earlier centuries. Indeed, Mr. Leach has found himself unable to follow his own plan. For he deals with the Rotherham Free School of Grammar, Song, and Writing, and with Aldwinckle Spelling and Reading School, not to mention the song schools. Though the title-page shows the range from the date 598 A.D. to 1909 A.D., it may be mentioned that 534 pages of his book are devoted to documents up to 1660 A.D. and about 20 pages to the period from 1660 A.D. to 1909 A.D. We are glad it is so, because most of us know far less of the earlier than the later period; but it makes the book somewhat lop-sided, and gives the impression that such an important work should have been in three volumes rather than one.

*A History of Eton College, 1440-1910.* By Sir H. Maxwell-Lyte, K.C.B. With illustrations. Fourth edition, revised throughout and greatly enlarged. xxiv+628 pp. (Macmillan.) 21s. net.—Sir H. Maxwell-Lyte's "History of Eton," since it was published in 1875, has become a classic amongst school histories. This last edition (excluding the index) contains fourteen pages less than the third, but three more lines on the page: thus the additions amount to about twenty pages. The most important additions are some details as to Elizabethan school life, drawn from Mr. Leach's researches, and a short chapter on recent events: but there are a number of smaller additions, many of them from the studies of Mr. R. A. Austen-Leigh, and these are scattered over the book. Four of the woodcuts have been omitted, and in their stead are seven beautiful photogravures of the buildings, from drawings by Mr. F. L. Griggs. It is a fascinating book, which it is difficult to lay down.

(1) *The Use of the Bible in the Education of the Young.* By T. Rayment. x+249 pp. (Longmans.) 3s. 6d.

(2) *A History of the Jews.* By Paul Goodman. viii+152 pp. (Temple Primers.) (Dent.) 1s. net.

Mr. Rayment has given us a well-written book which should be of the greatest value to all who use the Bible as a text-book for the young. The wonderful and varied literature called the Bible is to our hand, also an almost immeasurable literature upon it; but how are we to make it serviceable to the child? That is the question to which Mr. Rayment has applied himself with great diligence and sympathy. He insists on the paramount importance of deciding at the outset with what object we teach the child the Bible at all, and in his view that object should be the moral and spiritual education of the child. Having settled that, we have, first, to pursue a method by which "the child's mental development shall be provided for out of

the pages of the Scriptures," and, secondly, to adopt a plan which, "so far as the inevitable limitations of childhood permit, shall embody the results of modern Biblical scholarship, so that afterwards our young men and women may have nothing to unlearn." A bibliography and two tables of studies add to the value of this capital book, which is full of clear and forcible plans for making the Bible interesting and elevating to the child.

Mr. Paul Goodman's "History of the Jews" is a well-condensed little compendium. The dispersion of the Jews all over the world, together with their tenacious retention of their racial characteristics, has made them everywhere remarkable; yet their history is generally little known and less understood. Mr. Goodman's interesting summary of their development should dispel some of that ignorance.

*The Chosen People and the Promised Christ.* By the Rev. C. R. Ball. ix+244 pp. (Skeffington.) 2s. 6d.—Mr. Ball's book is a course of Old Testament lessons for every Sunday in the year, the object of which is "to convey Bible instruction in such a way as to give to our young people, at any rate, nothing to unlearn." On the whole the author succeeds in this, and in simple language understood of children; but occasionally there is a curious blending of modern and ancient interpretations, as, for instance, the acceptance of the evolutionary theory of creation side by side with a literal theory of the forbidden apple, the tempter, and the fall. The author, with commendable candour, points out that the book was first published under another title some twenty-five years ago, but that in its present form it has been largely rewritten.

*Educational Handwork.* Junior Course. By J. L. Martin and C. V. Manley. 87 pp. (Blackie.) 1s. 6d.—Teachers in charge of beginners' classes in manual work, where paper and cardboard models are constructed, would do well to examine this little book. The early lessons are designed so as to inculcate elementary ideas of geometry while also providing suitable handwork exercises.

## CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

### Teaching of Housecraft in Girls' Secondary Schools.

THE Board of Education has just published a memorandum which will be read by science mistresses in girls' secondary schools with extreme interest. The question as to the desirability of correlation between housecraft and science teaching—a question here restated rather than solved—is one that has been exercising them of late. It is an exceedingly useful thing to have in such a compact form an account of what schools are attempting in regard to housecraft.

I wish, however, to direct attention to and to raise a protest against one point in the memorandum. It is taken as a principle, on which it is assumed that there is agreement, that housecraft instruction should come as late as possible in school life. The phrase runs: "It is generally considered desirable." Yet an exception is made in favour of needlework, on the ground that it is purer craft than laundry or cooking. By the age of fourteen it is supposed that sufficient instruction in needlework will have been given.

Now there is no discussion of the reasons which lead to the general agreement, if such exists—and this the

memorandum itself seems to disprove—as to the desirability of postponing the study of housecraft in the school curriculum. It rests, apparently, on argument I. (2) of paragraph 14: "That no intelligent study of housecraft is possible except in close connection with scientific principles and methods, and that this is best supplied by means of related or domestic science." Yet the memorandum tells us that this consideration is of a highly controversial nature. Nevertheless, on the strength of it we are asked to believe it better to postpone the inculcation "of an unrelenting warfare against dust, dirt, and decay," and of a knowledge "of the beneficent action of light, fresh air, pure water, and good food," to an age when many life-habits will have already been formed; as also the teaching of household activities, the practice of which is undeniably the source of a much more lively interest to younger than to older girls, to an age when, according to the homes from which the girls come, they will either have acquired by actual doing less satisfactory methods than those they now learn or will have lost much of the desire begotten of the exuberant energy of childhood to do what older people do.

The memorandum admits that the difficulty of making housecraft compulsory for girls who are preparing for university examinations has been felt. It also states that one school, at least, has found a way out of this difficulty by making housecraft a subject for girls of inferior powers only. That there is no need for this postponement in the nature of things is shown by the fact that in one school the girls begin cookery and laundry at the age of eleven, and that all the instruction in these crafts has to be given in the elementary schools before the age of fourteen.

What is wanted is the working out of a simplified housecraft course that can be taken early and with nothing professional in its aim—which is adopted because it is necessary to give proper value to those crafts which have been handed down to us from the beginnings of civilised life, and on which the life of both highest and lowest depends to-day. Such a course would not set aside the recipe as useless. It would rather regard it as embodying the accumulated wisdom that has come down to us. It would follow it accurately, and then judge of the result. If the result is not liked, then experiment within a limited sphere becomes necessary. But to say "knowledge of proportions should be at least partially gained by experimental effort; and the only recipes used should be those constructed, or mainly constructed, by the girls themselves. From the outset all variations in results should be carefully traced to their origins," is to train cooks who cannot cook and will never cook, because they will always be above following directions. There is plenty of scope for the exercise of intelligence in the use of an ordinary cookery book. For example, the recipe gives quantities suited for six or seven persons; we want the same dish made for two persons. In the larger quantity half a teaspoonful of sugar and half a teaspoonful of salt are required. Problem: What quantity of salt and sugar will two persons require? On the proper solution of this problem depends the success of the dish in question—whether it is nice or nasty. We all know the cook who tries to persuade us that what is nasty is nice. But *de gustibus non disputandum*. The cook must have the spirit of the craftsman and the artist. It is no good for her to say "the food values are there; I have given you all you want for nutrition"; for digestion cannot be explained wholly mechanically: our liking is a factor which cannot be neglected.

It is because I believe that this craftsman spirit can best be developed young, and because valuable as scientific

principles are in giving deeper reasons for the why and wherefore of things, a knowledge of these reasons is not a knowledge of the craft, that I wish to direct attention to the fact that there are many people who think that the postponement of housecraft in girls' schools is due to the difficulty of planning it for all the girls rather than to reasoned conviction.

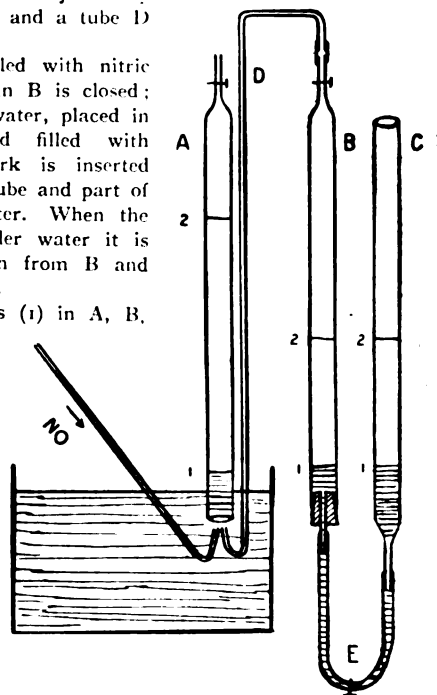
JESSIE WHITE.

### Law of Volumes.

A SIMPLE experiment to illustrate Gay Lussac's law of volumes is as follows. Three burettes are fitted up as shown. B and C are joined by a rubber tube E, and a tube D is attached to B.

A is nearly filled with nitric oxide. The tap in B is closed; B is filled with water, placed in the trough, and filled with oxygen. The cork is inserted with the rubber tube and part of C containing water. When the end of D is under water it is filled with oxygen from B and placed in position.

The water-levels (1) in A, B, and C are read; oxygen is forced carefully into A from B by raising C or pouring water into it. The end of A is now closed with the thumb, and A is well shaken and replaced. The water-levels (2) are now equalised and read.



It is interesting to note the result given for the proportion of oxygen and nitrogen in the air by this apparatus. For this purpose A is nearly filled with air and B with nitric oxide.

The Grammar School, Hexham.

W. G. MARTIN.

### Schoolboy Contempt.

I HAVE often thought that the great majority of those professionally engaged in the great work of elementary and secondary education are imperfectly aware of the great burden laid upon the country, but more especially upon the home, by the development of schoolboy contempt. To some extent, no doubt, the contemptuous behaviour of elder schoolboys of a certain type is natural and unavoidable. Still, the conduct in question deserves careful analysis and, so far as possible, counteraction. Personally, I rate the toll on the family and social life of the nation by this disposition as more onerous, and much more galling, than the whole of the material cost of education, great and growing as that is.

Let me deal with the simplest and most obvious cause first. The tendency, most excellent in many ways, to make school buildings large, costly, and artistic has resulted in a formerly undreamed-of disparity between the school and the home. Now several questions arise here. Is it wise or justifiable that this disparity should be so great? Is not this free expenditure of public money upon school buildings one of the causes tending directly to keep the home poorer than it would otherwise be? Many items in

the cost of education are unavoidable, and, moreover, willingly and manfully borne. But the cost of school buildings may easily be doubled without any corresponding increase in the efficiency of the education given. Contempt arising from this cause is like adding insult to injury.

For instance, in the district I know best, the school buildings and furniture alone will shortly entail an addition of 9½d. to the rates; and this gives an actual charge of 5s. per workman's house per annum. The gross charges for education, other than for buildings, works out at £4 1s. 10d. per head per annum, and the cost per house to just over 15s. per annum.

Now let me turn to the kind of knowledge a boy gains at school. The technical methods and symbolism employed causes the practical knowledge used in daily life to be looked upon as of an inferior order, so that a cock-of-the-walk air is easily put on and maintained. But, on the grounds of heredity alone, we should feel safe in denying any great qualitative difference between the knowledge of the parent and the child. A compulsory examination in school work in, say, five or ten years after leaving school would show the evanescent character of much that passes for school learning. If the assumed differences were deep-seated they would persist; and they do not persist. Moreover, in the eager and mistaken attempt to make learning easy and pleasant, its inherent difficulties are either kept out of sight or glossed over. This is a mistaken policy. Only to the shallowest minds do things seem simple and easy.

It is, further, easy for the teacher as well as for the scholar unduly to minimise the acquirements of adults out of school. An adequate theory of the practical man is still a desideratum. Meanwhile, Wisdom is justified of her children.

Up to the present far too little attention has been paid to the limiting conditions imposed by heredity. For instance, the fundamental difference between the aristocratic and the plebeian types of mind should be recognised more fully. In the former class many inhibitions are inherited; in the latter undue liberty is more harmful, although the type represents probably a wider range of potential powers (see James's "Principles of Psychology," vol. ii., pp. 370-1). Where there is a mixed inheritance contempt is no doubt allied with those agnostic and iconoclastic proclivities which in some cases precede an unusually rich development both of feelings and of thought. In these cases the burden must be borne with patience and with sympathy. But extrinsic causes should be foreseen, and prevented so far as possible.

S. F. WILSON.

#### Marking in Form.

THE following proposal as to the allotment of marks may interest your readers. It may be called "the decreasing mark and increasing bonus" system. As designed, it was intended to satisfy three conditions:

(i) That, normally, the top boy of a set gets about twice the lowest boy's marks.

(ii) That the top boy of a set should get about the same marks as the middle boy in the set immediately above.

(iii) That boys in lower sets scatter more than boys in upper sets.

| Set   | Marks   | Bonus   | Probable Range  | Midmark |
|-------|---------|---------|-----------------|---------|
| A ... | 600 ... | 0 ...   | 300 to 600 ...  | 450     |
| B ... | 550 ... | 150 ... | 425 ,, 700 ...  | 563     |
| C ... | 500 ... | 300 ... | 550 ,, 800 ...  | 675     |
| D ... | 450 ... | 450 ... | 675 ,, 900 ...  | 788     |
| E ... | 400 ... | 600 ... | 800 ,, 1000 ... | 900     |
| F ... | 350 ... | 750 ... | 925 ,, 1100 ... | 1013    |

From which it follows, in addition, that of three given sets A, B, C, the top boy in A gets about the same mark as the bottom boy in C.

P.

#### English and Englishness.

MIGHT a former contributor and constant reader ask a service of other readers of THE SCHOOL WORLD? For nearly ten years I have been engaged in teaching English in Sweden, and have been intermittently trying to draw up a list of books (especially, but not exclusively, fiction) which would give Continental students of English sound ideas about the life, ways, habits, ideas, speech, &c., of the English-speaking peoples of to-day. It would be a great help if some readers would jot down on a postcard the names of a dozen or so books which at once occur to them as markedly characteristic. The books should, I think, be readable, veracious, not ephemeral, concerned almost wholly with the present generation, and not too extravagantly individual in language. Postcards should contain name and address, so that I could send to those who respond to this invitation the results of the inquiry.

C. S. FEARENSIDE.

Johannesgaten 201v, Stockholm.

#### The Koenigsberger Fluid Prism.

AT the end of the notice of our prism on p. 437 of THE SCHOOL WORLD for November the writer mentions a combination given by Mr. C. D. Ahrens, and he appears to have the idea that the combination of Ahrens was made prior to ours. As, on the contrary, our Koenigsberger Prism was designed about four years ago, and protected by German patent at that time, we lay stress on the fact of our priority; and we should feel obliged if this fact could be brought to the knowledge of the readers of your paper, who otherwise may infer that our prism is only an imitation of another man's idea.

F. HELIGE & Co.

Freiburg, Breisgau, November 7.

IN describing the Koenigsberger Prism I alluded to one produced in this country, having physical characters closely similar, with the sole purpose of reminding your readers that we were not lagging behind in the march of modern developments. I was, however, unaware that Messrs. Hellige's invention had been so long in existence, and am now glad to give this firm their due credit for priority of design.

THE WRITER OF THE NOTICE.

## The School World.

A Monthly Magazine of Educational Work and Progress.

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All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

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